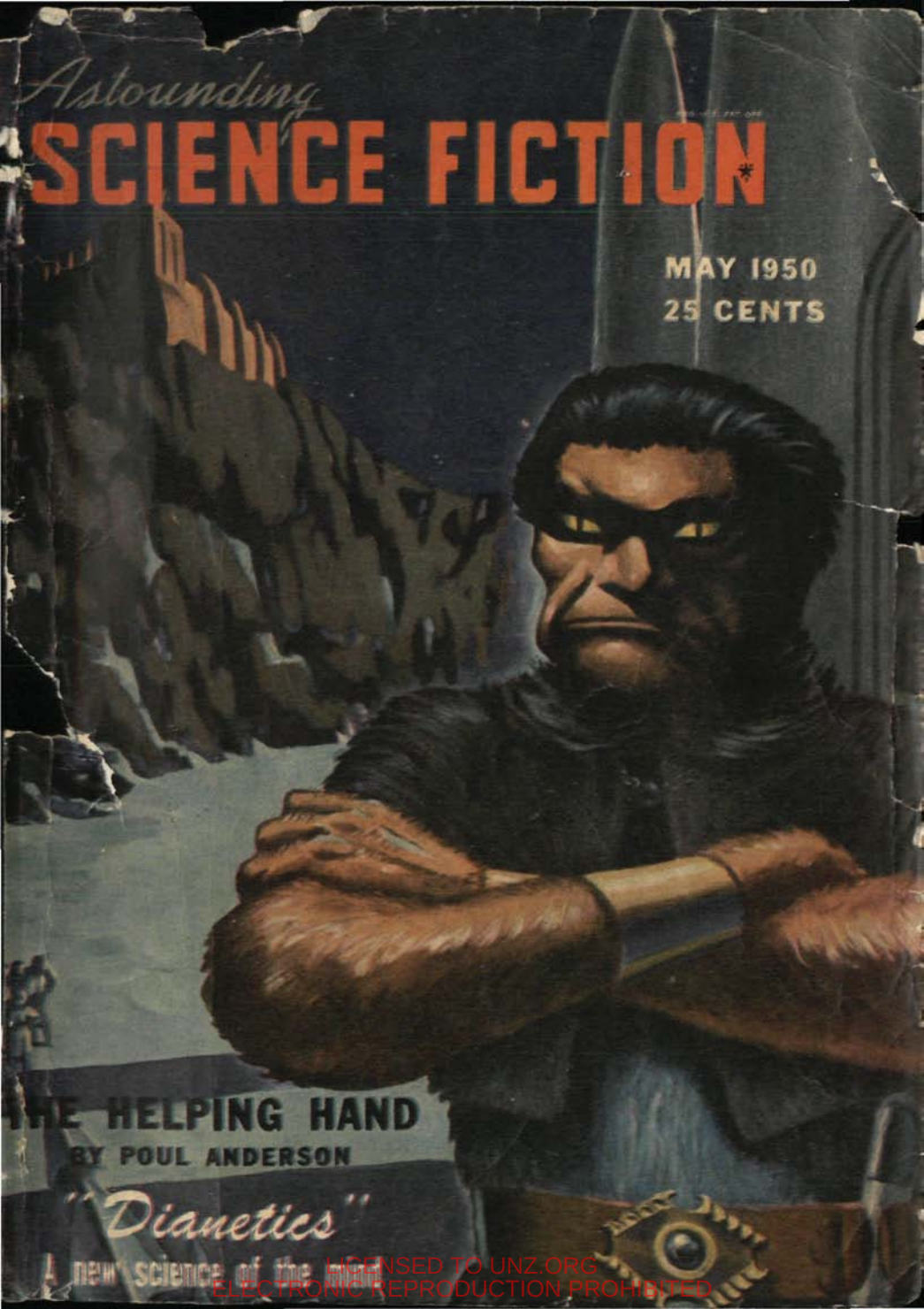

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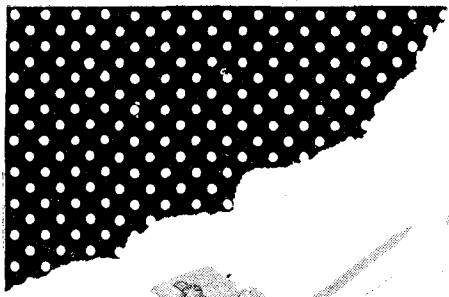

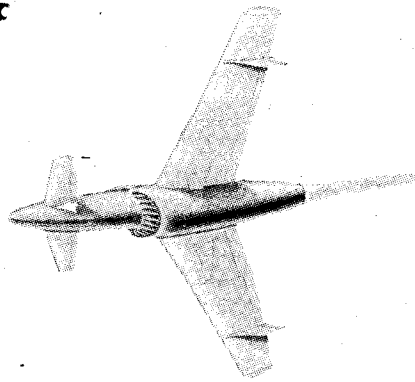

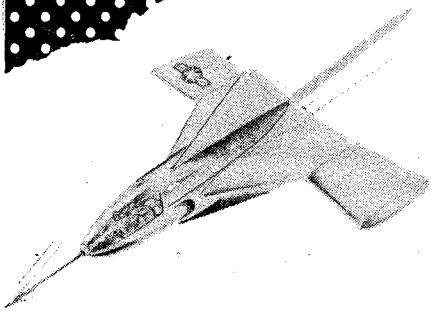

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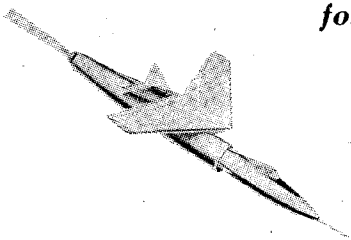

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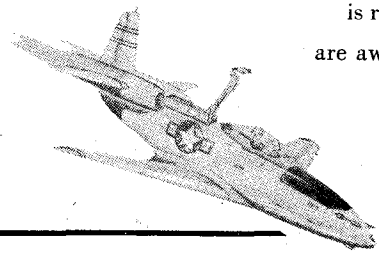

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CONCERNING DIANETICS

The long article on *dianetics* by L. Ron Hubbard, in this issue, is, I feel, a highly important publication indeed. The article describes a technique of mental therapy of such power that it will, I know, seem fantastic. If so, it can also be said that the power of the human mind is, indeed, fantastic. I want to assure every reader, most positively and unequivocally, that this article is *not* a hoax, joke, or anything but a direct, clear statement of a totally new scientific thesis.

Dr. Joseph A. Winter, M.D., was asked to write the introductory note; he has studied the techniques in detail, and learned the techniques himself. I have investigated the material myself. Dr. Winter can speak as a medical expert; I can only say that my investigations have led me to the conviction that the phenomena I have observed definitely merit publication of this material for wider analysis and testing.

It would have been wholly unfair to publish such revolutionary material until such time as Hubbard's textbook on the technique was available. That book—"Dianetics: The Modern Science of Mental Health"—is available now from Hermitage House. It contains the exact description of the procedures used.

Hubbard, as an engineer, has tackled the problem of the mind from the scientific method. Basically, that method is:

1. Gather all available data that is, or appears to be, relevant.
2. From the data, form an hypothesis.
3. On the basis of the hypothesis, make a prediction.
4. Experiment to check the validity of the prediction.
5. Vary the experiments, and collect more data.
6. When the new theory breaks down, take the now-collected data and formulate a new hypothesis.
7. Go back to step 3.

Most readers of this magazine are fully accustomed to that method; to those who are not, the above described process is *not* circular; it is spiral. Each turn of the spiral sweeps in more and more territory. It is the turning of precisely such a spiral process that led from Dalton's early atomic hypothesis to Bohr's original

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theory of atomic structure, to present quantum-mechanical analysis of nuclear forces. It has led to aircraft that fly, automobiles that work, and radio that covers the planet. It is *not* a self-defeating circular process.

It is also the logical process that led to the present theories of dianetics.

Now there is an interesting thing about a scientific theory; the scientist always rather vaguely hopes the theory he is working with is true, but knows that it *does not need to be*. A scientific theory is a useful tool; it need not be true so long as it is useful. Dalton's theory implied atoms were hard little balls; it was incorrect, but it advanced chemistry. Therefore it was a good theory. The present theories of dianetics may or may not be true; that's unimportant, *provided the techniques described actually work*.

In the scientific method, authority is meaningless. That the new theory disagrees with the Great Name, or with previous theory, or with "as everybody knows", is a statement best classified as a meaningless noise, so far as evidential value is concerned. Proving that something is "theoretically impossible" is an excellent way of conclusively proving the theory is wrong. What "everybody knows, of course" has been so consistently wrong over the past one hundred thousand years it is surprising that the Ancient Authority, "everybody", is still quoted. And so far as Great Name arguments go, simply substitute the arbitrary name "Joe Doakes" for the authority's name; if the argument no longer sounds so convincing—it never was.

And that, basically, is why the publication of Hubbard's text was necessary before this article could appear. There is one, and only one scientific argument with, for or against any scientific theory; experimental evidence. I am most anxious to publish articles confirming or disproving Hubbard's material; whether right or wrong, it is important. He *has* got some provable, demonstrable results; these must be explained. The only scientific method of examination is to have many scattered workers repeat Hubbard's experiments, using precisely the methods Hubbard specifies, and record results. Then, following the scientific method, vary the experiments on logically deduced consequences of the theories, and see what results occur.

To save time and trouble: experimental evidence cannot be denied by argument based on what Freud, Jung, Korzybski, or any other authority said. I am most anxious to publish articles in the field of the mind based on direct experiment. The high population of our mental institutions constitutes experimental evidence that something drastic in the way of revision of psychotherapy techniques is in order. The revisions proposed by dianetics may or may not be the needed ones, but experimental evidence, obtained by actually repeating Hubbard's experiments, is the one way to determine.

THE EDITOR.

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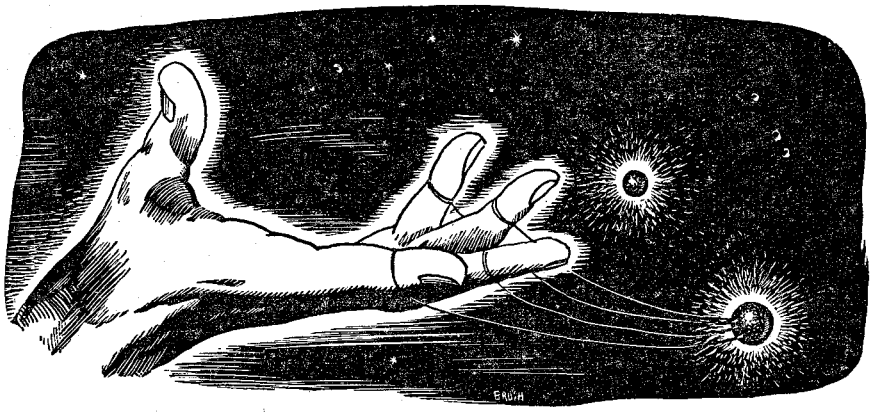

THE HELPING HAND

BY POUL ANDERSON

*A **helping** hand is a fine thing, but he who is helped, like a hitch-hiker, must go the way of the helper!*

Illustrated by Brush

A mellow bell tone was followed by the flat voice of the roboreceptionist: "His Excellency Valka Vahino, special envoy from the League of Cundaloa to the Commonwealth of Sol."

The Earthlings rose politely as he entered. Despite the heavy gravity and dry chill air of Terrestrial conditions, he moved with the flowing grace of his species, and many of the humans were struck anew by what a handsome people his race was.

People—yes, the folk of Cundaloa were humanoid enough, mentally and physically, to justify the term. Their differences were not important, they added a certain charm, the romance of alienness, to the comforting reassurance that there was no really basic strangeness.

Ralph Dalton let his eyes sweep over the ambassador. Valka Vahino was typical of his race—humanoid mammal, biped, with a face that was very manlike, differing only in its beauty of finely chiseled features,

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high cheekbones, great dark eyes. A little smaller, more slender than the Earthlings, with a noiseless feline ease of movement. Long shining blue hair swept back from his high forehead to his slim shoulders, a sharp and pleasing contrast to the rich golden skin color. He was dressed in the ancient ceremonial garb of Luai on Cundaloa—shining silvery tunic, deep purple cloak from which little sparks of glittering metal swirled like fugitive stars, gold-worked boots of soft leather. One slender six-fingered hand held the elaborately carved staff of office which was all the credentials his planet had given him.

He bowed, a single rippling movement which had nothing of servility in it, and said in excellent Terrestrial which still retained some of the lilting, singing accent of his native tongue: "Peace on your houses! The Great House of Cundaloa sends greetings and many well-wishings to his brothers of Sol. His unworthy member Valka Vahino speaks for him in friendship."

Some of the Earthlings shifted stance, a little embarrassed. *It did sound awkward in translation,* thought Dalton. *But the language of Cundaloa was one of the most beautiful sounds in the Galaxy.*

He replied with an attempt at the same grave formality. "Greetings and welcome. The Commonwealth of Sol receives the representative of the League of Cundaloa in all friendship. Ralph Dalton, Premier of the Commonwealth, speaking for the people of the Solar System.

He introduced the others then—cabinet ministers, technical advisers, military staff members. It was an important assembly. Most of the power and influence in the Solar System was gathered here.

He finished: "This is an informal preliminary conference on the economic proposals recently made to your gov . . . to the Great House of Cundaloa. It has no legal standing. But it is being televised, and I daresay the Solar Assembly will act on a basis of what is learned at these and similar hearings."

"I understand. It is a good idea." Vahino waited until the rest were seated before taking a chair.

There was a pause. Eyes kept going to the clock on the wall. Vahino had arrived punctually at the time set, but Skorrogan of Skontar was late. *Tactless,* thought Dalton, *but then the manners of the Skontarans were notoriously bad. Not at all like the gentle deference of Cundaloa, which in no way indicated weakness.*

There was aimless conversation, of the "How do you like it here?" variety. Vahino, it developed, had visited the Solar System quite a few times in the past decade. Not surprising, in view of the increasingly close econoimic ties between his planet and the Commonwealth. There were a great many Cundaloan students in Earthly universities, and before the war there had been a growing tourist traffic from Sol to

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Avaiki. It would probably revive soon—especially if the devastation were repaired and—

"Oh, yes," smiled Vahino. "It is the ambition of all young *anamai* . . . men on Cundaloa to come to Earth, if only for a visit. It is not mere flattery to say that our admiration for you and your achievements is boundless."

"It's mutual," said Dalton. "Your culture, your art and music your literature—all have a large following in the Solar System. Why, many men, and not just scholars, learn Luaian simply to read the *Dvanagoa-Epai* in the original. Cundaloan singers, from concert artists to night club entertainers, get more applause than any others." He grinned. "Your young men here have some difficulty keeping our Terrestrial coeds off their necks. And your few young women here are besieged by invitations. I suppose only the fact that there cannot be issue has kept the number of marriages as small as it has been."

"But seriously," persisted Vahino, "we realize at home that your civilization sets the tone for the known Galaxy. It is not just that Solarian civilization is the most advanced technically, though that has, of course, much to do with it. *You* came to *us,* with your spaceships and atomic energy and medical science and all else—but after all, we can learn that and go on with you from there. It is, however, such acts as . . . well, as your present offer of help: To rebuild ruined worlds light-years away, pouring your own skill and treasure into our homes, when we can offer you so little in return—it is that which makes you the leading race in the Galaxy.

"We have selfish motives, as you well know," said Dalton a little uncomfortably. "Many of them. There is, of course, simple humanitarianism. We could not let races very like our own know want when the Solar System and its colonies have more wealth than they know what to do with. But our own bloody history, has taught us that such programs as this economic-aid plan redound to the benefit of the initiator. When we have built up Cundaloa and Skontar, got them producing again, modernized their backward industry, taught them our science—they will be able to trade with us. And our economy is still, after all these centuries, primarily mercantile. Then, too, we will have knitted them too closely together for a repetition of the disastrous war just ended. And they will be allies for us against some of the really alien and menacing cultures in the Galaxy, planets and systems and empires against which we may one day have to stand."

"Pray the High One that that day never comes," said Vahino soberly. "We have seen enough of war."

The bell sounded again, and the robot announced in its clear inhuman tones: "His Excellency Skorrogan Valthak's son, Duke of Kraakahaym, special envoy from the Empire of

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Skontar to the Commonwealth of Sol."

They got up again, a little more slowly this time, and Dalton saw the expressions of dislike on several faces, expressions which smoothed into noncommittal blankness as the newcomer entered. There was no denying that the Skontarans were not very popular in the Solar System just now, and partly it was their own fault. But most of it they couldn't help.

The prevailing impression was that Skontar had been at fault in the war with Cundaloa. That was plainly mistaken. The misfortune was that the suns Skang and Avaiki, forming a system about half a light-year apart, had a third companion which humans usually called Allan after the captain of the first expedition to the system. And the planets of Allan were uninhabited.

When Terrestrial technology came to Skontar and Cundaloa, its first result had been to unify both planets—ultimately, both systems into rival states which turned desirous eyes on the green new planets of Allan. Both had had colonies there, clashes had followed, ultimately the hideous five years' war which had wasted both systems and ended in a peace negotiated with Terrestrial help. It had been simply another conflict of rival imperialisms, such as had been common enough in human history before the Great Peace and the formation of the Commonwealth. The terms of the treaty were as fair as possible, and both systems were exhausted. They would keep the peace now, especially when both were eagerly looking for Solarian help to rebuild.

Still—the average human liked the Cundaloans. It was almost a corollary that he should dislike the Skontarans, and blame them for the trouble. But even before the war, they had not been greatly admired. Their isolationism, their clinging to outmoded traditions, their harsh accent, their domineering manner, even their appearance told against them.

Dalton had had trouble persuading the Assembly to let him include Skontar in the invitation to economic aid conferences. He had finally persuaded them that it was essential—not only would the resources of Skang be a material help in restoration, particularly their minerals, but the friendship of a potentially powerful and hitherto aloof empire could be gained.

The aid program was still no more than a proposal. The Assembly would have to make a law detailing who should be helped, and how and how much, and then the law would have to be embodied in treaties with the planets concerned. The initial informal meeting here was only the first step. But—crucial.

Dalton bowed formally as the Skontaran entered. The envoy responded by stamping the butt of his huge spear against the floor, leaning the archaic weapon against the wall, and extending his holstered

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blaster handle first. Dalton took it gingerly and laid it on the desk. "Greeting and welcome," he began, since Skorrogan wasn't saying anything. "The Commonwealth—"

"Thank you." The voice was a hoarse bass, somehow metallic, and strongly accented. "The Valtam of the Empire of Skontar sends greetings to the Premier of Sol, by Skorrogan Valthak's son, Duke of Kraakahaym."

He stood out in the room, seeming to fill it with his strong, forbidding presence. In spite of coming from a world of higher gravity and lower temperature, the Skontarans were a huge race, over two meters tall and so broad that they seemed stocky. They could be classed as humanoid, in that they were bipedal mammals, but there was not much resemblance beyond that. Under a wide low forehead and looming eyebrow ridges, the eyes of Skorrogan were fierce and golden, hawk's eyes. His face was blunt snouted, with a mouthful of fangs in the terrific jaws, his ears were blunt and set high on the massive skull. Short brown fur covered his muscular body to the end of the long restless tail, and a ruddy mane flared from his head and throat. In spite of the, to him, tropical temperature, he wore the furs and skins of state occasions at home, and the acrid reek of his sweat hung about him.

"You are late," said one of the ministers with thin politeness. "I trust you were not detained by any difficulties."

"No, I underestimated the time needed to get here," answered Skorrogan. "Please to excuse me." He did not sound at all sorry, but lowered his great bulk into the nearest chair and opened his portfolio. "We have business now, my sirs?"

"Well . . . I suppose so." Dalton sat down at the head of the long conference table. "Though we are not too concerned with facts and figures at this preliminary discussion. We want simply to agree on general aims, matters of basic policy."

"Naturally, you will wish a full account of the available resources of Avaiki and Skang, as well as the Allanian colonies," said Vahino in his soft voice. "The agriculture of Cundaloa, the mines of Skorrogan, will contribute much even at this early date, and, of course, in the end there must be economic self-sufficiency."

"It is a question of education, too," said Dalton. "We will send many experts, technical advisers, teachers —"

"And, of course, some question of military resources will arise—" began the Chief of Staff.

"Skontar have own army," snapped Skorrogan. "No need of talk there yet."

"Perhaps not," agreed the Minister of Finance mildly. He took out a cigarette and lit it.

"Please, sir!" For a moment

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Skorrogan's voice rose to a bull roar. "No smoke. You know Skontarans allergic to tabacco—"

"Sorry!" The Minister of Finance stubbed out the cylinder. His hand shook a little and he glared at the envoy. There had been little need for concern, the air-conditioning system swept the smoke away at once, And in any case—you don't shout at a cabinet minister. Especially when you come to ask him for help—

"There will be other systems involved," said Dalton hastily, trying with a sudden feeling of desperation to smooth over the unease and tension. "Not only the colonies of Sol. I imagine your two races will be expanding beyond your own triple system, and the resources made available by such colonization—"

"We will have to," said Skorrogan sourly. "After treaty rob us of all the fourth planet— No matter. Please to excuse. Is bad enough to sit at same table with enemy without being reminded of how short time ago he *was* enemy."

This time the silence lasted a long while. And Dalton realized, with a sudden feeling almost of physical illness, that Skorrogan had damaged his own position beyond repair. Even if he suddenly woke up to what he was doing and tried to make amends—and who ever heard of a Skontaran noble apologizing for anything—it was too late. Too many millions of people, watching their telescreens, had seen his unpardonable arrogance. Too many important men, the leaders of Sol, were sitting

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in the same room with him, looking into his contemptuous eyes and smelling the sharp stink of unhuman sweat.

There would be no aid to Skontar.

With sunset, Clouds piled up behind the dark line of cliffs which lay to the east of Geyrhaym, and a thin chill wind blew down over the valley with whispers of winter. The first few snowflakes were borne on it, whirling across the deepening purplish sky, tinted pink by the last bloody light. There would be a blizzard before midnight.

The spaceship came down out of darkness and settled into her cradle. Beyond the little spaceport, the old town of Geyrhaym lay wrapped in twilight, huddling together against the wind. Firelight glowed ruddily from the old peak-roofed houses, but the winding cobbled streets were like empty canyons, twisting up the hill on whose crest frowned the great castle of the old barons. The Valtam had taken it for his own use, and little Geyrhaym was now the capital of the Empire. For proud Skirnor and stately Thruvang were radioactive pits, and wild beasts howled in the burned ruins of the old palace.

Skorrogan Valthak's son shivered as he came out of the air lock and down the gangway. Skontar was a cold planet. Even for its own people, it was cold. He wrapped his heavy fur cloak more tightly about him.

They were waiting near the bottom of the gangway, the high chief of Skontar. Under an impassive exterior, Skorrogan's belly muscles tightened. There might be death waiting, in that silent sullen group of men. Surely disgrace—and he couldn't answer—

The Valtam himself stood there, his white mane blowing in the bitter wind. His golden eyes seemed luminous in the twilight, hard and fierce, a deep sullen hate smoldering behind them. His oldest son, the heir apparent Thordin, stood beside him. The last sunlight gleamed crimson on the head of his spear, it seemed to drip blood against the sky. And there were the other mighty men of Skang, counts of the provinces on Skontar and the other planets, and they all stood waiting for him. Behind them was a line of imperial household guards, helmets and corselets shining in the dusk, faces in shadow but hate and contempt like a living force radiating from them.

Skorrogan strode up to the Valtam, grounded his spear butt in salute, and inclined his head in just the proper degree. There was silence then, save for the whimpering wind. Drifting snow streamed across the field.

The Valtam spoke at last, without ceremonial greeting. It was like a deliberate slap in the face: "So you are back again."

"Yes, sire." Skorrogan tried to keep his voice stiff. It was difficult to do. He had no fear of death, but it was cruelly hard to bear this

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weight of failure. "As you know, I must regretfully report my mission unsuccessful."

"Indeed. We receive telecasts here," said the Valtam acidly.

"Sire, the Solarians are giving virtually unlimited aid to Cundaloa. But they refused any help at all to Skontar. No credits, no technical advisers—nothing. And we can expect little trade and almost no visitors."

"I know," said Thordin. "And *you* were sent to get their help."

"I tried, sire." Skorrogan kept his voice expressionless. He had to say something—*but be forever damned if I'll plead!* "But the Solarians have an unreasonable prejudice against us, partly related to their wholly emotional bias toward Cundaloa and partly, I suppose, due to our being unlike them in so many ways."

"So they do," said the Valtam coldly. "But it was not great, before. Surely the Mingonians, who are far less human than we, have received much good at Solarian hands. They got the same sort of help that Cundaloa will be getting, and that we might have had.

"We desire nothing but good relations with the mightiest power in the Galaxy. We might have had more than that. I know, from first-hand reports, what the temper of the Commonwealth was. They were ready to help us, had we shown any co-operativeness at all. We could have rebuilt, and gone farther than that—" His voice trailed off into the keening wind.

After a moment he went on, and the fury that quivered in his voice was like a living force: "I sent you as my special delegate to get that generously offered help. You, whom I trusted, who I thought was aware of our cruel plight—Arrrgh!" He spat. "And you spent your whole time there being insulting, arrogant, boorish. You, on whom all the eyes of Sol were turned, made yourself the perfect embodiment of all the humans think worst in us. No wonder our request was refused! You're lucky Sol didn't declare war!"

"It may not be too late," said Thordin. "We could send another—"

"No." The Valtam lifted his head with the inbred iron pride of his race, the haughtiness of a culture where for all history face had been more important than life. "Skorrogan went as our accredited representative. If we repudiated him, apologized for—not for any overt act but for bad manners!—if we crawled before the Galaxy—no! It isn't worth that. We'll just have to do without Sol."

The snow was blowing thicker now, and the clouds were covering the sky. A few bright stars winked forth in the clear portions. But it was cold, cold.

"And what a price to pay for honor!" said Thordin wearily. "Our folk are starving—food from Sol could keep them alive. They have only rags to wear—Sol would send clothes. Our factories are devastated,

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are obsolete, our young men grow up in ignorance of Galactic civilization and technology—Sol would send us machines and engineers, help us rebuild. Sol would send teachers, and we could become great—Well, too late, too late." His eyes searched through the gloom, puzzled, hurt. Skorrogan had been his friend. "But why did you do it? Why did you do it?"

"I did my best," said Skorrogan stiffly. "If I was not fitted for the task, you should not have sent me."

"But you were," said the Valtam. "You were our best diplomat. Your wiliness, your understanding of extra-Skontaran psychology, your personality—all were invaluable to our foreign relations. And then, on this simple and most tremendous mission —

"No more!" His voice rose to a shout against the rising wind. "No more will I trust you. Skontar will know you failed."

"Sire—" Shorrogan's voice shook suddenly. "Sire, I have taken words from you which from anyone else would have meant a death duel. If you have more to say, say it. Otherwise let me go."

"I cannot strip you or your hereditary titles and holdings," said the Valtam. "But your position in the imperial government is ended, and you are no longer to come to court or to any official function. Nor do I think you will have many friends left."

"Perhaps not," said Skorrogan. "I did what I did, and even if I could explain further I would not after these insults. But if you ask my advice for the future of Skontar—"

"I don't," said the Valtam. "You have done enough harm already."

". . . then consider three things." Skorrogan lifted his spear and pointed toward the remote glittering stars. "First, those suns out there. Second, certain new scientific and technological developments here at home—such as Dyrin's work on semantics. And last—look about you. Look at the houses your fathers built, look at the clothes you wear, listen, perhaps, to the language you speak. And then come back in fifty years or so and beg my pardon!"

He swirled his cloak about him, saluted the Valtam again, and went with long steps across the field and into the town. They looked after him with incomprehension and bitterness in their eyes.

There was hunger in the town. He could almost feel it, behind the dark walls, the hunger of ragged and desperate folk crouched over their fires and wondered whether they could survive the winter. Briefly, he wondered how many would die—but he didn't dare follow the thought out.

He heard someone singing, and paused. A wandering bard, begging his way from town to town, came down the street, his tattered cloak blowing fantastically about him. He plucked his harp with thin fingers,

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and his voice rose in an old ballad that held all the harsh ringing music, the great iron clamor of the old tongue, the language of Naarhaym on Skontar. Mentally, for a moment of wry amusement, Skorrogan rendered a few lines into Terrestrial:

Wildly the winging
War birds, flying
wake the winter-dead
wish for the sea-road.
Sweetheart, they summon me,
singing of flowers
fair for the faring.
Farewell, I love you.

It didn't work. It wasn't only that the metallic rhythm and hard barking syllables were lost, the intricate rhyme and alliteration, though that was part of it—but it just didn't make sense in Terrestrial. The concepts were lacking. How could you render, well, such a word as *vorkansraavin* as *faring* and hope to get more than a mutilated fragment of meaning? Psychologies were simply too different.

And there, perhaps, lay his answer to the high chiefs. But they wouldn't know. They couldn't. And he was alone, and winter was coming again.

Valka Vahino sat in his garden and let sunlight wash over his bare skin. It was not often, these days, that he got a chance to *aliacaui*—What was that old Terrestrial word? *Siesta?* But that was wrong. A resting Cundaloan didn't sleep in the afternoon. He sat or lay outdoors, with the sun soaking into his bones or a warm rain like a benediction over him, and he let his thoughts run free. Solarians called that *daydreaming,* but it wasn't, it was, well—they had no real word for it. Psychic recreation was a clumsy term, and the Solarians never understood.

Sometimes it seemed to Vahino that he had never rested, not in an eternity of years. The grinding urgencies of wartime duty, and then his hectic journeys to Sol—and since then, in the past three years, the Great House had appointed him official liaison man at the highest level, assuming that he understood the Solarians better than anyone else in the League.

Maybe he did. He'd spent a lot of time with them, and liked them as a race and as individuals. But—by all the spirits, how they worked! How they drove themselves! As if demons were after them.

Well, there was no other way to rebuild, to reform the old obsolete methods and grasp the dazzling new wealth which only lay waiting to be created. But right now it was wonderfully soothing to lie in his garden, with the great golden flowers nodding about him and filling the summer air with their drowsy scent, with a few honey insects buzzing past and a new poem growing in his head.

The Solarians seemed to have some difficulty in understanding a whole race of poets. When even the meanest and stupidest Cundaloan could stretch out in the sun and make

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lyrics—well, every race has its own peculiar talents. Who could equal the gadgeteering genius which the humans possessed?

The great soaring singing lines thundered in his head. He turned them over, fashioning them, shaping every syllable and fitting the pattern together with a dawning delight. This one would be—good! It would be remembered, it would be sung a century hence, and they wouldn't forget Valka Vahino. He might even be remembered as a masterverse-maker— *Alia Amaui cauianriho, valana, valana, vro!*

"Pardon, sir." The flat metal voice shook in his brain, he felt the delicate fabric of the poem tear and go swirling off into darkness and forgetfulness. For a moment there was only the pang of his loss, he realized dully that the interruption had broken a sequence which he would never quite recapture.

"Pardon, sir, but Mr. Lombard wishes to see you."

It was a sonic beam from the robo-receptionist which Lombard himself had given Vahino. The Cundaloan had felt the incongruity of installing its shining metal among the carved wood and old tapestries of his house, but he had not wanted to offend the donor—and the thing was useful.

Lombard, head of the Solarian reconstruction commission, the most important human in Avaikian System just now Vahino appreciated the courtesy of the man's coming to him, rather than simply sending for him. Only—why did he have to come exactly at this moment?

"Tell Mr. Lombard I'll be there in a minute."

Vahino went in the back way and put on some clothes. Humans didn't have the completely casual attitude toward nakedness of Cundaloa. Then he went into the forehall. He had installed some chairs there for the benefit of Terrestrials, who didn't like to squat on a woven mat—another incongruity. Lombard got up as Vahino entered.

The human was short and stocky, with a thick bush of gray hair above a seamed face. He had worked his way up from laborer through engineer to high commissioner, and the marks of his struggle were still on him. He attacked work with what seemed almost a personal fury, and he could be harder than tool steel. But most of the time he was pleasant, he had an astonishing range of interests and knowledge, and, of course, he had done miracles for the Avaikian System.

"Peace on your house, brother," said Vahino.

"How do you do," clipped the Solarian. As his host began to signal for servants, he went on hastily: "Please, none of your ritual hospitality. I appreciate it, but there just isn't time to sit and have a meal and talk cultural topics for three hours before getting down to business. I wish . . . well, you're a native here and I'm not, so I wish you'd person-

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ally pass the word around—tactfully, of course—to discontinue this sort of thing."

"But . . . they are among our oldest customs—"

"That's just it! Old—backward—delaying progress. I don't mean to be disparaging, Mr. Vahino. I wish we Solarians had some customs as charming as yours. But—not during working hours. Please."

"Well . . . I daresay you're right. It doesn't fit into the pattern of a modern industrial civilization. And that is what we are trying to build, of course." Vahino took a chair and offered his guest a cigarette. Smoking was one of Sol's characteristic vices, perhaps the most easily transmitted and certainly the most easily defensible. Vahino lit up with the enjoyment of the neophyte.

"Quite. Exactly. And that is really what I came here about, Mr. Vahino. I have no specific complaints, but there has accumulated a whole host of minor difficulties which only you Cundaloans can handle for yourselves. We Solarians can't and won't meddle in your internal affairs. But you must change some things, or we won't be able to help you at all."

Vahino had a general idea of what was coming. He'd been expecting it for some time, he thought grayly, and there was really nothing to be done about it. But he took another puff of smoke, and let it trickle slowly out, and raised his eyebrows in polite inquiry. Then he remembered that Solarians weren't used to interpreting nuances of expression as part of a language, and said aloud: "Please say what you like. I realize no offense is meant, and none will be taken."

"Good." Lombard leaned forward, nervously clasping and unclasping his big work-scarred hands. "The plain fact is that your whole culture, your whole psychology, is unfitted to modern civilization. It can be changed, but the change will have to be drastic. You can do it—pass laws, put on propaganda campaigns, change the educational system, and so on. But it *must* be done.

"For instance, just this matter of the siesta. Right now, all through this time-zone on the planet, hardly a wheel is turning, hardly a machine is tended, hardly a man is at his work. They're all lying in the sun making poems or humming songs or just drowsing. There's a whole civilization to be built, Vahino! There are plantations, mines, factories, cities abuilding—you just can't do it on a four-hour working day."

"No. But perhaps we haven't the energy of your race. You are a hyperthyroid species, you know."

"You'll just have to learn. Work doesn't have to be backbreaking. The whole aim of mechanizing your culture is to release you from physical labor and the uncertainty of dependence on the land. And a mechanical civilization can't be cluttered with as many old beliefs and rituals and customs and traditions as yours is. There just isn't time. Life is too

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short. And it's too incongruous. You're still like the Skontarans, lugging their silly spears around after they've lost all practical value."

"Tradition *makes* life—the meaning of life—"

"The machine culture has its own tradition. You'll learn. It has its own meaning, and I think that is the meaning of the future. If you insist on clinging to outworn habits, you'll never catch up with history. Why, your currency system—"

"It's practical."

"In its own field. But how can you trade with Sol if you base your credits on silver and Sol's are an abstract actuarial quantity? You'll have to convert to our system for purpose of trade—so you might as well change over at home, too. Similarly, you'll have to learn the metric system if you expect to use our machines or make sense to our scientists. You'll have to adopt . . . oh, everything!

"Why, your very society— No wonder you haven't exploited even the planets of your own system when every man insists on being buried at his birthplace. It's a pretty sentiment, but it's no more than that, and you'll have to get rid of it if you're going to reach the stars.

"Even your religion . . . excuse me . . . but you must realize that it has many elements which modern science has flatly disproved."

"I'm an agnostic," said Vahino quietly. "But the religion of Mauiroa means a lot to many people."

"If the Great House will let us bring in some missionaries, we can convert them to, say Neopantheism. Which I, for one, think has a lot more personal comfort and certainly more scientific truth than your mythology. If your people are to have faith at all, it must not conflict with facts which experience in a modern technology will soon make self-evident."

"Perhaps. And I suppose the system of familial bonds is too complex and rigid for modern industrial society . . . yes, yes—there is more than a simple conversion of equipment involved."

"To be sure. There's a complete conversion of minds," said Lombard. And then, gently: "After all, you'll do it eventually. You were building spaceships and atomic power plants right after Allan left. I'm simply suggesting that you speed up the process a little."

"And language—"

"Well, without indulging in chauvinism I think all Cundaloans should be taught Solarian. They'll use it, at some time or other in their lives. Certainly all your scientists and technicians will have to use it, professionally. The languages of Laui and Muara and the rest are beautiful, but they just aren't suitable for scientific concepts. Why, the agglutination alone— Frankly, your philsophical books read to me like so much gibberish. Beautiful, but almost devoid of meaning. Your language lacks—*precision.*"

"Aracles and Vranamaui were al-

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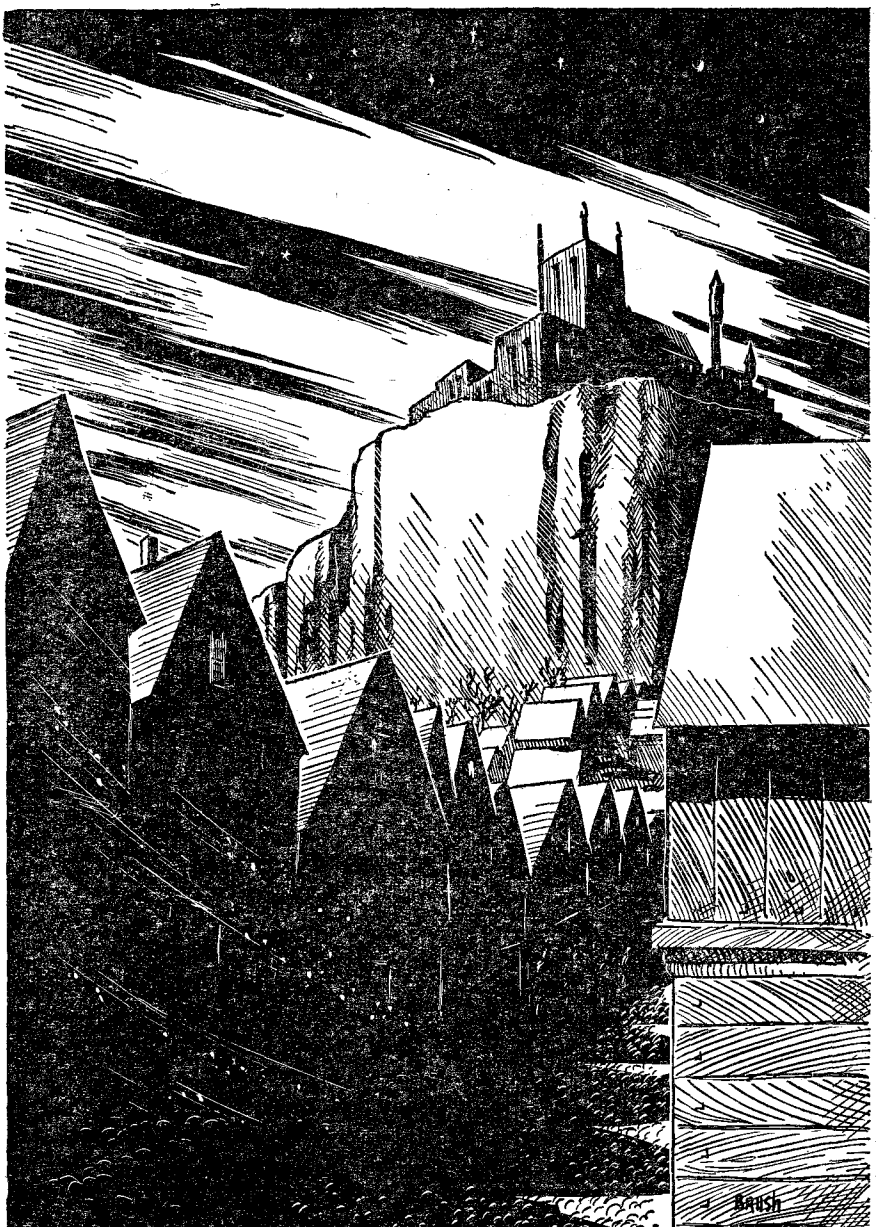

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ways regarded as models of crystal thought," said Vahino wearily. "And I confess to not quite grasping your Kant and Russell and even Korzybski—but then, I lack training in such lines of thought. No doubt you are right. The younger generation will certainly agree with you.

"I'll speak to the Great House and may be able to get something done now. But in any case, you won't have to wait many years. All our young men are striving to make themselves what you wish. It is the way to success."

"It is," said Lombard, and then softly: "Sometimes I wish success didn't have so high a price. But you need only look at Skontar to see how necessary it is."

"Why—they've done wonders in the last three years. After the great famine, they got back on their feet, they're rebuilding by themselves, they've even sent explorers looking for colonies out among the stars." Vahino smiled wryly. "I don't love our late enemies, but I must admire them."

"They have courage," admitted Lombard. "But what good is courage alone? They're struggling in a tangle of obsolescence. Already the overall production of Cundaloa is three times theirs. Their interstellar colonizing is no more than a feeble gesture of a few hundred individuals. Skontar can live, but it will always be a tenth-rate power. Before long, it'll be a Cundaloan satellite state.

"And it's not that they lack resources, natural or otherwise. It's that, having virtually flung our offer of help back in our faces, they've taken themselves out of the mainstream of Galactic civilization. Why, they're even trying to develop scientific concepts and devices we knew a hundred years ago, and are getting so far off the track that I'd laugh if it weren't so pathetic. Their language, like yours, just isn't adapted to scientific thought, and they're carrying chains of rusty tradition around. I've seen some of the spaceships they've designed themselves, for instance, instead of copying Solarian models, and they're ridiculous. Half a hundred different lines of approach, trying desperately to find the main line we took long ago. Spheres, ovoids, cubes—I hear someone even thinks he can build a tetrahedral spaceship!"

It might just barely be possible," mused Vahino. "The Riemannian geometry on which the interstellar drive itself is based would permit—"

"No, no! Earth tried that sort of thing and found it didn't work. Only a crank—and, isolated, the scientists of Skontar are becoming a race of cranks—would think so.

"We humans were just fortunate, that's all. Even we had a long history before a culture arose with the mentality appropriate to a scientific civilization. Before that, technological progress was almost at a standstill. Afterward, we reached the stars. Other races can do it, but first they'll have to adopt the proper

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civilization, the proper mentality—and without our guidance, Skontar or any other planet isn't likely to evolve that mentality for many centuries to come.

"Which reminds me—" Lombard fumbled in a pocket. "I have a journal here, from one of the Skontaran philosophical societies. A certain amount of communication still does take place, you know; there's no official embargo on either side, it's just that Sol has given Skang up as a bad job. Anyway"—he fished out a magazine—"there's one of their philosophers, Dyrin, who's doing some new work on general semantics which seems to be arousing quite a furore. You read Skontaran, don't you?"

"Yes," said Vahino. "I was in military intelligence during the war. Let me see—" He leafed through the journal to the article, and began translating aloud:

"The writer's previous papers show that the principle of nonelementalism is not itself altogether a universal, but must be subject to certain psychomathematical reservations arising from consideration of the *broganar*—that's a word I don't understand—field, which couples to electronic wave-nuclei and—"

"What is that jabberwocky?" exploded Lombard.

"I don't know," said Vahino helplessly. "The Skontaran mind is as alien to me as to you."

"Gibberish," said Lombard. "With the good old Skontaran to-hell-with-you dogmatism thrown in." He threw the magazine on the little bronze brazier, and fire licked at its thin pages. "Utter nonsense, as anyone with any knowledge of general semantics, or even an atom of common sense, can see." He smiled, crookedly, a little sorrowfully, and shook his head. "A race of cranks!"

"I wish you could spare me a few hours tomorrow," said Skorrogan.

"Well—I suppose so."Thordin XI, Valtam of the Empire of Skontar, nodded his thinly-maned head. "Though next week would be a little more convenient."

"Tomorrow—please."

The note of urgency could not be denied. "All right," said Thordin. "But what will be going on?"

"I'd like to take you on a little jaunt over to Cundaloa."

"Why there, of all places? And why must it be tomorrow, of all times?"

"I'll tell you—then." Skorrogan inclined his head, still thickly maned though it was quite white now, and switched off his end of the telescreen.

Thordin smiled in some puzzlement. Skorrogan was an odd fellow in many ways. But . . . well . . . we *old men have to stick together. There is a new generation, and one after that, pressing on our heels.*

No doubt thirty-odd years of living in virtual ostracism had changed the old joyously confident Skorrogan. But it had, at least, not embittered him. When the slow success of Skontar had become so plain that

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his own failure could be forgotten, the circle of his friends had very gradually included him again. He still lived much alone, but he was no longer unwelcome wherever he went. Thordin in particular had discovered that their old friendship could be as alive as ever before, and he was often over to the Citadel of Kraakahaym, or Skorrogan to the palace. He had even offered the old noble a position back in the High Council, but it had been refused, and another ten years—or was it twenty?—had gone by with Skorrogan fulfilling no more than his hereditary duties as duke. Until now, for the first time, something like a favor was being asked— *Yes, I'll go tomorrow. To blazes with work. Monarchs deserve holidays, too.*

Thordin got up from his chair and limped over to the broad window. The new endocrine treatments were doing wonders for his rheumatism, but their effect wasn't quite complete yet. He shivered a little as he looked at the wind-driven snow sweeping down over the valley. Winter was coming again.

The geologists said that Skontar was entering another glacial epoch. But it would never get there. In another decade or so, the climate engineers would have perfected their techniques and the glaciers would be driven back into the north. But meanwhile, it was cold and white outside, and a bitter wind hooted around the palace towers.

It would be summer in the southern hemisphere now, fields would be green and smoke would rise from freeholders' cottages into a warm blue sky. Who had headed that scientific team?—yes, Aesgayr Haasting's son. His work on agronomics and genetics had made it possible for a population of independent smallholders to produce enough food for the new scientific civilization. The old freeman, the backbone of Skontar in all her history, had not died out.

Other things had changed, of course. Thordin smiled wryly as he reflected just how much the Valtamate had changed in the last fifty years. It had been Dyrin's work in general semantics, so fundamental to all the sciences, which had led to the new psychosymbological techniques of government. Skontar was an empire in name only now. It had resolved the paradox of a libertarian state with a nonelective and efficient government. All to the good, of course, and really it was what past Skontaran history had been slowly and painfully evolving toward. But the new science had speeded up the process, compressed centuries of evolution into two brief generations. As physical and biological science had accelerated beyond belief— But it was odd that the arts, music, literature had hardly changed, that handicraft survived, that the old High Naarhaym was still spoken.

Well, so it went. Thordin turned back toward his desk. There was work to be done. Like that matter of the colony on Aesric's Planet— You couldn't expect to run several

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hundred thriving interstellar colonies without some trouble. But it was minor. The Empire was safe. And it was growing.

They'd come a long way from that day of despair fifty years ago, and from the famine and pestilence and desolation which followed. A long way— Thordin wondered if even he realized just how far.

He picked up the microreader and glanced over the pages. His mind training came back to him and he arrished the material. He couldn't handle the new techniques as easily as those of the younger generation, trained in them from birth, but it was a wonderful help to arrish, complete the integration in his subconscious, and indolate the probabilities. He wondered how he had ever survived the old days of reasoning on a purely conscious level.

Thordin came out of the warp just outside Kraakahaym Citadel. Skorrogan had set the point of emergence there, rather than indoors, because he liked the view. It was majestic, thought the Valtam, but dizzying—a wild swoop of gaunt gray crags and wind-riven clouds down to the far green valley below. Above him loomed the old battlements, with the black-winged kraakar which had given the place its name hovering and cawing in the sky. The wind roared and boomed about him, driving dry white snow before it.

The guards raised their spears in salute. They were unarmed otherwise, and the vortex guns on the castle walls were corroding away. No need for weapons in the heart of an empire second only to Sol's dominions. Skorrogan stood waiting in the courtyard. Fifty years had not bent his back much, or taken the fierce golden luster from his eyes. It seemed to Thordin today, though, that the old being wore an air of taut and inwardly blazing eagerness, he seemed somehow to be looking toward the end of a journey.

Skorrogan gave conventional greeting and invited him in. "Not now, thanks," said Thordin. "I really am very busy. I'd like to start the trip at once."

The duke murmured the usual formula of polite regret, but it was plain that he could hardly wait, that he could ill have stood an hour's dawdling indoors. "Then please come," he said. "My cruiser is all set to go."

It was cradled behind the looming building, a sleek little roboship with the bewildering outline of all tethahedral craft. They entered and took their seats at the center, which, of course, looked directly out beyond the hull.

"Now," said Thordin, "perhaps you'll tell me why you want to go to Cundaloa today?"

Skorrogan gave him a sudden look in which an old pain stirred. "Today," he said slowly, "it is exactly fifty years since I came back from Sol."

"Yes—?" Thordin was puzzled, and vaguely uncomfortable. It wasn't like the taciturn old fellow to rake

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up that forgotten score.

"You probably don't remember," said Skorrogan, "but if you want to vargan it from your subconscious, you'll perceive that I said to them, then, that they could come back in fifty years and beg my pardon."

"So now you want to vindicate yourself." Thordin felt no surprise—it was typically Skontaran psychology—but he still wondered what there was to apologize for.

"I do. At that time I couldn't explain. Nobody would have listened, and in any case I was not perfectly sure myself that I had done right." Skorrogan smiled, and his thin hands set the controls. "Now I am. Time has justified me. And I will redeem what honor I lost then by showing you, today, that I didn't really fail.

"Instead, I succeeded. You see, I alienated the Solarians on purpose."

He pressed the main-drive stud, and the ship flashed through half a light-year of space. The great blue shield of Cundaloa rolled majestically before them, shining softly against a background of a million blazing stars.

Thordin sat quietly, letting the simple and tremendous statement filter through all the levels of his mind. His first emotional reaction was a vaguely surprised realization that, subconsciously, he had been expecting something like this. He hadn't ever really believed, deep down inside himself, that Skorrogan could be an incompetent.

Instead—no, not a traitor. But—what, then? What had he meant? Had he been mad, all these years, or —

"You haven't been to Cundaloa much since the war, have you?" asked Skorrogan.

"No—only three times, on hur-

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ried business. It's a prosperous system. Solar help put them on their feet again."

"Prosperous . . . yes, yes, they are." For a moment, a smile tugged at the corners of Skorrogan's mouth, but it was a sad little smile, it was as if he were trying to cry but couldn't quite manage it. "A bustling, successful little system, with all of three colonies among the stars."

With a sudden angry gesture, he slapped the short-range controls and the ship warped down to the surface. It landed in a corner of the great spaceport at Cundaloa City, and the robots about the cradle went to work, checking it in and throwing a protective forcedome about it.

"What—now?" whispered Thordin. He felt, suddenly, dimly afraid, he knew vaguely that he wouldn't like what he was going to see.

"Just a little stroll through the capital, said Skorrogan. "With perhaps a few side trips around the planet. I wanted us to come here unofficial, incognito, because that's the only way we'll ever see the real world, the day-to-day life of living beings which is so much more important and fundamental than any number of statistics and economic charts. I want to show you what I saved Skontar from." He smiled again, wryly. "I gave my life for my planet, Thordin. Fifty years of it, anyway—fifty years of loneliness and disgrace."

They emerged into the clamor of the great steel and concrete plain, and crossed over the gates. There was a steady flow of beings in and out, a never-ending flux, the huge restless energy of Solarian Civilization. A large proportion of the crowd was human, come to Avaiki on business or pleasure, and there were some representatives of other races. But the bulk of the throng was, naturally, native Cundaloans. Sometimes one had a little trouble telling them from the humans. After all, the two species looked much alike, and with the Cundaloans all wearing Solarian dress—

Thordin shook his head in some bewilderment at the roar of voices. "I can't understand," he shouted to Skorrogan. "I know Cundaloan, both Laui and Muara tongues, but—"

"Of course not," answered Skorrogan. "Most of them here are speaking Solarian. The native languages are dying out fast."

A plump Solarian in shrieking sports clothes was yelling at an impassive native storekeeper who stood outside his shop. "Hey, you boy, gimme him fella souvenir chop-chop—"

"Pidgin Solarian," grimaced Skorrogan. "It's on its way out, too, what with all young Cundaloans being taught the proper speech from the ground up. But tourists never learn." He scowled, and for a moment his hand shifted to his blaster.

But no—times changed. You did not wipe out someone who simply happened to be personally objectionable, not even on Skontar. Not any more.

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The tourist turned, and bumped him. "Oh, so sorry," he exclaimed, urbanely enough. "I should have looked where I was going."

"Is no matter," shrugged Skorrogan.

The Solarian dropped into a struggling and heavily accented High Naarhaym: "I really must apologize, though. May I buy you a drink?"

"No matter," said Skorragan, with a touch of grimness.

"What a planet! Backward as . . . as Pluto! I'm going on to Skontar from here. I hope to get a business contract—you know how to do business, you Skontarans!"

Skorrogan snarled and swung away, fairly dragging Thordin with him. They had gone half a block down the motilator before the Valtam asked: "What happened to your manners? He was trying hard to be civil to us. Or do you just naturally hate humans?"

"I like most of them," said Skorrogan. "But not their tourists. Praise the Fate, we don't get many of that breed on Skontar. Their engineers and businessmen and students are all right. I'm glad that relations between Sol and Skang are close, so we can get many of that sort. But keep out the tourists!"

"Why?"

Skorrogan gestured violently at a flashing neon poster. "That's why." He translated the Solarian:

SEE THE ANCIENT MAUIROA CEREMONIES!

COLORFUL! AUTHENTIC! THE MAGIC OF OLD CUNDALOA!

At the Temple of the High One
Admission reasonable

"The religion of Mauiroa meant something, once," said Skorrogan quietly. "It was a noble creed, even if it did have certain unscientific elements. Those could have been changed— But it's too late now. Most of the natives are either Neopantheists or unbelievers, and they perform the old ceremonies for money. For a show."

He grimaced. "Cundaloa hasn't lost all it picturesque old buildings and folkways and music and the rest of its culture. But it's become conscious that they are picturesque, which is worse."

"I don't quite see what you're so angry about," said Thordin. "Times have changed. But they have on Skontar, too."

"Not in this way. Look around you, man! You've never been in the Solar System, but you must have seen pictures from it. Surely you realize that this is a typical Solarian city—a little backward maybe, but typical. You won't find a city in the Avaikian System which isn't essentially—*human*.

"You won't find significant art, literature, music here any more—just cheap imitations of Solarian products, or else an archaistic clinging to outmoded native traditions, romantic counterfeiting of the past.

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You won't find science that isn't essentially Solarian, you won't find machines basically different from Solarian, you'll find fewer homes every year which can be told from human houses. The old society is dead, only a few fragments remain now. The familial bond, the very basis of native culture, is gone, and marriage relations are as casual as on Earth itself. The old feeling for the land is gone. There are hardly any tribal farms left, the young men are all coming to the cities to earn a million credits. They eat the products of Solarian-type food factories, and you can only get native cuisine in a few expensive restaurants.

"There are no more handmade pots, no more handwoven cloths. They wear what the factories put out. There are no more bards chanting the old lays and making new ones. They look at the telescreen now. There are no more philosophers of the Araclean or Vranamauian schools, there are just second-rate commentaries on Aristotle versus Korzybski or the Russell theory of knowledge—"

Skorrogan's voice trailed off. Thordin said softly, after a moment: "I see what you're getting at. Cundaloa has made itself over into the Solarian pattern."

"Just so. It was inevitable from the moment they accepted help from Sol. They'd *have* to adopt Solar science, Solar economics, ultimately the whole Solar culture. Because that would be the only pattern which would make sense to the humans who were taking the lead in reconstruction. And, since that culture was obviously successful, Cundaloa adopted it. Now it's too late. They can never go back. They don't even want to go back.

"It's happened before, you know. I've studied the history of Sol. Back before the human race even reached the other planets of its system, there were many cultures, often radically different. But ultimately one of them, the so-called Western society, became so overwhelmingly superior technologically that . . . well, no others could co-exist with it. To compete, they had to adopt the very approach of the West. And when the West helped them from their backwardness, it necessarily helped them into a Western pattern. With the best intentions in the world, the West annihilated all other ways of life."

"And you wanted to save us from that?" asked Thordin. I see your point, in a way. Yet I wonder if the sentimental value of old institutions was equal to some millions of lives lost, to a decade of sacrifice and suffering."

"It was more than sentiment!" said Skorrogan tensely. "Can't you see? Science is the future. To amount to anything, we *had* to become scientific. But was Solarian science the only way? Did we have to become second-rate humans to

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survive—or could we strike out on a new path, unhampered by the overwhelming helpfulness of a highly developed but essentially alien way of life? I thought we could. I thought we would have to.

"You see, no nonhuman race will ever make a really successful human. The basic psychologies—metabolic rates, instincts, logical patterns, *everything*—are too different. One race *can* think in terms of another's mentality, but never too well. You know how much trouble there's been in translating from one language to another. And all thought is in language, and language reflects the basic patterns of thought. The most precise, rigorous, highly thought-out philosophy and science of one species will never quite make sense to another race. Because they are making somewhat different abstractions from the same great basic reality.

"I wanted to save us from becoming Sol's spiritual dependents. Skang was backward. It *had* to change its ways. But—why change them into a wholly alien pattern? Why not, instead, force them rapidly along the natural path of evolution—our own path?"

Skorrogan shrugged. "I did," he finished quietly. "It was a tremendous gamble, but it worked. We saved our own culture. It's *ours*. Forced by necessity to become scientific on our own, we developed our own approach.

"You know the result. Dyrin's semantics was developed—Solarian scientists would have laughed it to abortion. We developed the tetrahedral ship, which human engineers said was impossible, and now we can cross the Galaxy while an old-style craft goes from Sol to Alpha Centauri. We perfected the spacewarp, the psychosymbology of our own race—not valid for any other—the new agronomic system which preserved the freeholder who is basic to our culture—everything! In fifty years, Cundaloa has been revolutionized, Skontar has revolutionized itself. There's a universe of difference.

"And we've therefore saved the intangibles which are our own, the art and handicrafts and essential folkways, music, language, literature, religion. The *élan* of our success is not only taking us to the stars, making us one of the great powers in the Galaxy, but it is producing a renaissance in those intangibles equaling any Golden Age in history.

"And all because we remained ourselves."

He fell into silence, and Thordin said nothing for a while. They had come into a quieter side street, an old quarter where most of the buildings antedated the coming of the Solarians and many ancient-style native clothes were still to be seen. A party of human tourists was being guided through the district, and had clustered about an open pottery booth.

"Well?" said Skorrogan after a while. "Well?"

"I don't know." Thordin rubbed his eyes, a gesture of confusion.

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"This is all so new to me. Maybe you're right. Maybe not. I'll have to think awhile about it."

"I've had fifty years to think about it," said Skorrogan bleakly. "I suppose you're entitled to a few minutes."

They drifted up to the booth. An old Cundaloan sat in it, among a clutter of goods, brightly painted vases and bowls and cups. Native work. A woman was haggling over one of the items.

"Look at it," said Skorrogan to Thordin. "Have you ever seen the old works? This is cheap stuff, made by the thousands for the tourist trade. The designs are corrupt, the workmanship's shoddy. But every loop and line in those designs had meaning, once."

Their eyes fell on one vase, standing beside the old boothkeeper, and even the unimpressionable Valtam drew a shaky breath. It glowed, that vase. It seemed almost alive, in a simple shining perfection of clean lines and long smooth curves, someone had poured all his love and longing into it. Perhaps he had thought *This will live when I am gone.*

Skorrogan whistled. "That's an authentic old vase," he said. "At least a century old—a museum piece! How'd it get in this junk shop?"

The clustered humans edged a little away from the two giant Skontarans, and Skorrogan read their expressions with a wry inner amusement: *They stand in some awe of us. Sol no longer hates Skontar, it admires us. It sends its young men to learn our science and language. But who cares about Cundaloa any more?*

But the woman followed his eyes and saw the vase glowing beside the old vendor. She turned back to him: "How much?"

"No sell," said the Cundaloan. His voice was a dusty whisper, and he hugged his shabby mantle closer about him.

"You sell." She gave him a bright artificial smile. "I give you much money. I give you ten credits."

"No sell."

"I give you hundred credits. Sell!"

"This mine. Fambly have it since old days. No sell."

"Five hundred credits!" She waved the money before him.

He clutched the vase to his thin chest and looked up with dark liquid eyes in which the easy tears of the old were starting forth. "No sell. Go 'way. No sell*oamaui.*"

"Come on," mumbled Thordin. He grabbed Skorrogan's arm and pulled him away. "Let's go. Let's get back to Skontar."

"So soon?"

"Yes. Yes. You were right, Skorrogan. You were right, and I am going to make public apology, and you are the greatest savior of history. But let's get home!"

They hurried down the street. Thordin was trying hard to forget the old Cundaloan's eyes. But he wondered if he ever would.

THE END

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THE APPRENTICE

BY MILES M. ACHESON

The apprentice suffered from a no-go situation, an all-or-nothing activity. There was nothing whatever to do—until everything happened at once. Including plain, outright desertion!

Illustrated by Ward

Ted Fend put the finishing touches to the blaster he had altered, and turned away to charge it. It would shoot an adjustable fan-shaped ray now—it could be regulated at short range to a fraction of an inch—suitable for opening the safe, suitable for fighting his way through the jungle when he went "absent without leave."

Outside the square concrete building the wind howled in the fury of a typical Venusian storm. The ring bolts clattered on the flat smooth-edged roof as the air made them vibrate and deafening crashes of thunder followed hard upon blinding flashes of lightning. Rain fell in torrents and the temperature dropped to a point where life was almost comfortable, and the air was almost cool. The whole earth seemed to shake with the force of the tempest.

He took the blaster from the charging rack and thought ruefully of his ambitions only three months ago when he had passed with honors the competitive examination into the much sought after Space Service—the Service in which it was possible to rise to as much as four thousand units a month before one was thirty-five. His present pay, as Probationary Apprentice, was a hundred.

He put the blaster down on the table.

The wind shrieked in a crescendo of sound and the whole building seemed to rock. Startled, he looked up. To his amazement, the warning light was on. Somebody had opened the outer door of the air lock.

This, of course, wasn't possible. The loneliness must be making him imagine things. He'd be seeing visions next. There was nobody near him. Nobody could enter that lock. He had been completely isolated from the world since that day three

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months and nine days ago, when he had been dumped by plane on the roof of the building in the heart of the wild.

He remembered his first reception in the Service. He had stood at attention in a neat brand-new uniform in front of a desk at which sat a grim mouthed captain with frosty blue eyes and a double row of medals.

"You are now in the Service, Mr. Fend. What is required is courage, common sense, and an ability to carry out orders. You will leave in half an hour for Metrological Station 497. Your work instructions are on a notice on the wall. Your last act when you finally leave the station will be to open the combination safe in the office. Good-by, Mr. Fend."

"Yes, sir. What is the combination number?"

"Good-by, Mr. Fend."

An hour later he had been left here, entirely alone.

The warning light went out. That was a good thing. It showed he was still normal—not mad yet. Of course it would also go out if somebody was in the lock and had shut the outside door. He felt himself trembling, and the last words of the friendly airman who had dropped him here came into his mind: "Remember, whatever you go through—every other spaceman has been through the same thing."

The only way in which he could find out whether anybody was really in that lock was to go and see. He grasped the blaster and started to walk round the table. The way to lay spooks was to go after them! He stopped suddenly, prepared to resist attack. The inner door was opening.

His jaw dropped. A blue-eyed girl stood in the doorway dressed in wine hued shirt and shorts. At her throat was a touch of yellow, which matched the color of her hair.

"How did you get here?" asked Ted, almost too astonished for words.

"I crawled," said the girl. "Do you usually threaten visitors with a gun?"

Ted pulled himself together with an effort and put down the blaster. Of course, she'd have to crawl. Nobody could walk upright in that gale.

"Sorry," he said. "You're the first visitor I've had and you startled me. Come in. Are you alone or are there other members of your party?"

The girl shut the inner door and sat down on a chair at the bare plastic table.

"I'm alone," she said. "I was out in a pleasure craft and got forced down by the storm—landed in the lee of your building. The wind caught the flier after I got out and blew it away. I'd like some coffee please."

Ted looked at her in amazement. It must have been a hair-raising experience, and to get out of it alive showed that she had considerable technical skill. Pleasure craft were single seaters, and, while strongly built, they didn't carry much fuel.

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They frequently had to be towed home.

He walked into the kitchen, a room exactly the same size, ten by ten by ten, as each of the others in the house and put on a kettle. Then he came back to the office-living room.

"Didn't you get metrological reports warning of the storm?" he asked.

"I only arrived a couple of days ago," said the girl. "I didn't realize that storms moved so quickly on Venus and didn't bother to look. Can you phone up for another aircraft for me? I'm Mary Loo, and I'm appearing in the show 'Gay Girls Revue' which opens in a week. Heaven only knows how I'm to pay for that broken flier."

A whistle sounded from the kitchen; one thing about these modern kettles—they were quick. He got up, added the coffee mixture from a can, and fetched out two cups and saucers, which did not match. Then he got spoons and milk and sugar.

"I'm afraid it's not easy," he said as he entered the room. "This station is absolutely cut off from everywhere—no phone, no radio, no mail, and nobody ever comes here."

The girl looked round the room with its thirty inch high shelf against every wall except where there were doors. Large notices hung above dials, "Hourly Rainfall", "Electric Atmospheric Charge", and so on.

"But surely," she said, "this is a metrological station, isn't it? Surely you must make a report every day to somebody and you could let them know?"

"These instruments are entirely automatic," said Ted, "and apparently transmit automatically." He pointed to a notice marked "Instructions" hanging on the wall. "My sole job is to press Button A at 8:00 a.m. and 8:00 p.m. and I have a strong suspicion that Button A is a dummy. My problem is how I'm going to get out, and now you're here, you'll have to share it."

The storm stopped with a suddenness that was almost alarming and there was dead silence.

Ted finished his coffee and pushed back his chair.

"If you're feeling O. K. now, let's go out and see what's happened to your flier. Perhaps it's still usable."

He picked up the blaster and the two went into the air lock where they slipped on the standard rubberoid suits with transparent helmets. Ted checked the oxygen in each, then reached for the weapon belts which hung above, gave one to Mary and buckled the other on himself. Then he opened the outer door and walked out.

How he hated the scene! In the distance was a low range of mountains, bare of plants and purple from the color of the rocks. They fell abruptly to a narrow fringe of vegetation which ended at an arm of the sea. He saw movement there as though great animals were playing. On the near side of the arm was a thick forest which ended in a shrub-

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by upland plain. Water dripped from everything and pools lay in each small hollow in the ground. There were no flowers. There was no grass. On the plain there was only high fern and low conifers.

Fifty yards away was the massive wire fence which surrounded the whole station to keep out wild animals. In front of him was the strong iron gate and near it was the tractor used for keeping the compound free of the ever-encroaching vegetation. Jammed half in the gate and half in the fence was the flier.

"Only a single seater," said Ted.

"Why do you want to go away?" asked Mary. "The Space Service is the best job there is!"

"Others can have the glittering prizes," said Ted. "I've had over three months solitary confinement doing nothing useful and that's enough."

He walked over to the tractor and started the engine.

"I wonder why the flier's ground grips didn't work."

"No fuel," said the girl briefly. "I used it all fighting the storm. I did not want to have to land in the jungle. I had to make this station."

"It was a good bit of navigation," said Ted. He ran the tractor up to the gate.

"I took my first class flier's certificate on Earth," said Mary, "but here—"

Ted got down and looked at the machine. There was surprisingly little damage. The landing gear was wrecked and one of the short wings and the tail had got entangled in the wires of the fence and gate.

"We'll have to open the gate to ease it free," he said. "Will you hitch this tow rope over the end of the gate? I'll pull it open so that the flier slues round and then we should be able to get her free on a straight pull on the tail from the outside. You watch the flier and shout if anything goes wrong."

The gate was pulled open without incident and Ted drove the tractor outside. Mary attached the tow rope to the tail and the flier was pulled back. Then she disconnected the rope.

"Fine," said Ted. "Now we go in, shut the gate, pull the flier forward—and there we are."

A high whinny of rage came from the edge of the forest. Ted turned his head in alarm, knowing the sound. A herd of animals about the size of elephants had pushed their way onto the plain. They were strange beasts. The head was not unlike that of a rhinoceros except that it had three blue horns, one above each eye and one above its nose which ended in a sharp yellow beak. Above the neck was a scarlet shield or ruff which raised up as the animal lowered its head to charge. The rest of the beast was green above and yellow below. The herd was charging now.

Ted leaped down to the caterpillar tread, pulled the girl into the seat, put the tractor in gear and, standing on the tractor, turned to face the

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thundering rush, leaving Mary at the controls.

"Get through the gate," he said. I'll try and shut it when we're inside." He snatched out his blaster with the fan-shaped ray, fired and fired again. There were too many of them. The herd seemed to be endless. At all costs the animals had to be stopped before they could hit the tractor or reach the gate. His blaster went dead in his hand, its charge exhausted. He threw it away and snatched at the regulation one in his belt.

Mary was through the gate now. He jumped down and pushed at its handle. For a moment, it caught on the wing of the flier. He strained fiercely and it swung free.

One of the reptiles was charging the gate, coming at it obliquely. He fired through the bars, missed and fired again, twice, rapidly. He had shot off the head of the brute in front of him but it still ran and he fired at the region of the hips to destroy the nerve center. His aim was true for he saw the animal's body lose co-ordination, but it still came on.

From beside him the girl fired at its forelegs, and the animal turned and with one last heave the beast crashed against the fence. He slammed the gate to. They were safe.

"Those things," said Ted grimly, "are comparatively peaceful animals —a kind of reptilian hippopotamus. They charge on sight; otherwise they're harmless."

The girl jumped as one of the animals charged the fence and was flung back by the strength of the wire.

"You're sure that flimsy looking thing will hold them? It looks terribly dangerous."

"I think so," said Ted. "It must be the strongest plastic alloy there is. There are rolls of it in the storeroom under the house with a massive block and tackle arrangement with hooks and rope for tightening it. But we'd better hitch up that flier of yours and pull it free or one of the beasts will knock its tail off.

He opened the door of the cabin, snapped down the release which opened the tow ring in the nose, attached the rope to the ring and started the tractor, slowly working the tail free. It pulled loose with a sharp twang of the wire. Then he drew it slowly towards the house, and the girl jumped up behind him.

"I don't like the way these beasts charge the wire, then draw back and charge again," she said.

"I think they're attracted by the greenness of the cleared land inside it," said Ted. "They've got very little brain. They may go on butting the wire all night. It should be strong enough to hold them.

"I hope so," cried the girl. "Let's get in."

"We ought to stake out the flier first in case of a blow," said Ted.

"Never mind," said the girl. "Some other time. Just now let's get in. Quick."

Ted stopped the tractor and the two went in through the air lock.

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"I am glad," said Mary, "that there are no windows to this place. The beasts outside scare me. Why won't they die when one blasts them?"

"These reptiles are like the turtles or wasps on Earth. Cut a wasp in half and the front part will go on eating quite happily. Bees are the same. So are these brutes only more so. The nervous energy seems to be all over the body. If you cut off a leg, that leg would go on living by itself."

Mary shuddered. "I can see why you want to get out. What about my flier?"

"Well, I haven't looked at it yet," said Ted, "but two things occur to me. The first is the landing gear is smashed, and I've got nothing here to make a new one, and the second is it's a single seater."

"If the landing gear was cut off, we could launch the flier from the roof like a glider. Then, with the aid of antigravity, one of us might be able to get away and send back help for the other."

"No. In the first place we have no way to give the powerful push required for launching. Also if I went away, I wouldn't want to report your being here because my doing so would immediately show that I was absent without leave, and I'd want time to get away from Venus. And if you flew out I couldn't follow because it is a criminal offense to help a spaceman to desert and nobody would do it. Nobody would help me."

The girl thought for a while.

"You were planning to go before I arrived. What was your scheme?"

"To go by tractor. There are two nozzles in this building, one for fuel and one for oxygen—for the suits. You put the tank inlets against them and they automatically get filled but—and here's the catch—the nozzles only give enough for twenty-three hours per twenty-four hour day. I've been saving up. I've got enough fuel for a fortnight, and enough oxygen for ten days."

"Do you think you can get to the nearest settlement in ten days?"

"In five, if the going was good. But it probably won't be. There are marshes and jungles which may have to be detoured—quite apart from the

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fact that one has to sleep. Two of us will use just exactly twice as much oxygen as one which makes the limit five days. That's much too risky. We must wait here until we can save up enough oxygen."

"By that time, I suppose, the reptiles outside will have moved on?"

"I hope so. We can't go out until they do. I designed a new form of blaster which I used today. It's splendid against say twenty or thirty animals but as you saw it's no use against hundreds. I left it outside. I'll go and get it and at the same time look at the flier."

He rubbed the back of his neck and became suddenly very conscious of the fact that the hair there was long and untidy. Being jet black it would show. He never had succeeded in cutting the hair at the back of his neck properly. He wanted a barber.

"I'm afraid I look rather wild and woolly," he began.

Mary interrupted him.

"While you're gone, I'll get together something to eat. Don't be too long or I'll get nervous and think you've been eaten by the beasts!"

Ted walked down to the gate to where his blaster was lying. All round the fence was a ring of the reptiles, hairless, and with only the remnants of scales. Every now and again one would get up and hurl itself against the fence, but in the main they stood expectantly with their yellow beaks closed and whisps of vegetation hanging from their jaws. In the plain some of the bulls were fighting among themselves.

What a herd! There must be thousands of them, he thought, turning to walk back towards the flier. If the fence broke—

He looked over the small machine, and swore softly. It was one of those luxury affairs—everything padded and double reinforced—decorated with useless metal fittings. He might have been able to pull out enough junk to make the plane carry two instead of one. The air conditioner for example wasn't necessary. Nor was the oxygen tank. He undid the clips and pulled it out. They needed all the oxygen they could get.

The engine seemed undamaged, but he would have to look that over later. The frame seemed sound too,

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but the landing gear was a mess of broken wheels and shattered rods. No hope of repairing that.

His original intention had been to anchor the plane by wires attached to pegs driven into the ground, and he picked up a piece of conifer lying near and experimentally thrust it into the soil. It sank in deeply without much resistance, and he shook his head doubtfully. The ground, of course, was marshy. The pegs would have to be very long to hold the machine in a wind.

He freed the tow rope ring from the pin in the back of the tractor and laid it thoughtfully on the ground.

The bellowing at the fence grew louder. The reptiles were now running against the wire in droves. Perhaps they were hungry. So was he. He heaved the oxygen tank onto his shoulder, grinned, and turned in to the house. It was getting dark. He would do his nightly chore of pressing Button A.

Ted woke up on the floor of the storage room feeling unwell. His head ached, and he had no energy. He got up and made his way to the shower hoping that cold water—or as near cold as could be got in that climate—would make him feel better.

Mary, who had been sleeping in his bunk, was already up and dressed, her face white.

"It's stuffy," she said. "Like an oven."

Stuffy! Ted turned to the oxygen gauge on the wall. It showed a low concentration. There was no way to alter the building supply so he turned on the tank he had got from the flier, and left it hissing gently, while he had his shower and dressed. When he came back he found he had left it on slightly too long. The concentration was a little high and he felt exhilarated. He turned off the tap and sat down to breakfast.

"According to your instruments," said Mary, indicating a lighted weather map on the wall, with a wave of her head, "there's another storm coming up this afternoon—from the north this time. We'd better make the flier fast. If it gets loose again it will probably get smashed up—and I don't want to have to pay for a new one!"

Ted leaned back in his chair. It was wonderful how she was able to make something which actually tasted like food out of that synthetic stuff. He admired the curve of her neck and the way her cheek dimpled when she smiled.

"We'll have to fasten it to the ring bolts on the roof," he said. "The ground's too soft to peg it down. We'll string a rope or wire over the roof and drag it up by means of the tractor."

He charged his blasters and went into the air lock, where he put on his suit and helmet and opened the outer door. He shut it again rapidly, and came back into the room.

"The whole compound," he said, "is full of the reptiles. They must have broken through the fence. Probably the wire got badly weak-

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ened when we twisted the flier free."

Mary looked at him gravely.

"You mean," she said, "that we can't get out to use the tractor. And there is only just enough oxygen—the house and the suit supply—to support two people, so we can't save any. We are marooned."

"It's worse than that," he said, "the point is there is not enough oxygen for two. Unless we go now we shall die in time of suffocation. If we went by tractor, at least there is a chance. But now we can't reach it and every minute our oxygen supply diminishes."

"We could use the blaster to keep the brutes off while we got on the tractor."

"Maybe, though it's a forlorn hope. But the fuel and air tanks are in the storeroom downstairs. The tractor has got to be loaded. Even if you covered me from the roof it couldn't be done, because the *blasters won't stop the brutes if they charge.* The only hope is your flier."

"I don't want to be depressing," said Mary, "but how are you going to make it fly without a landing gear? It won't get off the ground without a short run, even with anti-gravity and as you said yourself, we can't launch it like a glider."

"I have an idea," said Ted. "The first thing is to get it on the roof. For that we need tools and a block and tackle. The last is heavy and awkward to carry. You'll have to give me a hand."

At last the work was done.

"We'll have to be quick," said Mary, pointing at the illuminated wall map. "The storm will be on us in about three hours."

Ted's gaze went from the chart to the safe below and the captain's last words rang in his mind. He took up the fan muzzled blaster. Perhaps there was something in the safe which would be of use.

He applied his weapon carefully and in four cuts the thick plastic door fell out. There was only a small red book in the safe. Nothing else. He picked it up. It was bound with imitation leather and had the title stamped in gold: "Strictly Confidential, Instructions for Employees."

His first thought was to throw it away and then he thought it might be an amusing souvenir later on and he shoved it into his pocket.

"That," he said, "is my last official act." He grinned and picked up a roll of plastic wire. "I am going absent without leave. Now, if you'll go on the roof—"

In theory, he thought, it was fairly easy. All he had to do was to nip out with one end of a roll of wire, slip it through the ring at the end of the tow rope and then run back with it to the air lock and join the wire securely into a strong loop. During this time Mary would be protecting him by shooting from the roof. He sweated as he worked.

Jumping out into a herd of the reptiles was a hair-raising activity. He had done what he had to do, jumped back, and shut the lock door with about half a second to spare

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from a charging beast. It had slung itself against the door as he slid it to. But the door would not close completely because of the two strands of wire which went outside to the ring, and so would not catch.

And one of the beasts was pawing at the opening.

Ted finished sawing through the thick wire and started twisting the two strands together. He had his foot against the inside of the door to keep it closed, but that would be no use at all if the brute got its beak in the gap.

He perspired in his rubberoid suit as he worked, a pair of pliers in each hand. That would do, he thought. That twist should be strong enough to hold the weight. Why hadn't Mary shot the beast at the door? The next part of the job was going to be dangerous with that brute there. He'd have to move fast.

He pocketed his tools, lifted the wire above his head and eased the door open a crack to push the joined wire through. What he had feared happened. A great horny beak pushed the door wide, and for a split second he gazed into a gaping reptilian mouth. He fired instinctively and threw the wire out. He fired again, realizing what had happened. It was the case of the front end of the wasp. Mary had done her best to protect him, but she had not been able to destroy the fore part of the beast for fear of cutting the wire he had taken so much risk to fix. However, he had killed the front end now and it lay twitching in the opening of the door. He had to throw it out. Unless the outer door was closed the inner door would not open and he could not get back into the house.

He could not throw it out. No man can lift the head of a beast the size of an elephant. As he looked, he saw other brutes rushing down on him, and although some fell from Mary's shots, others kept charging on. There was no time to move the carcass out of the way and he was shut off from the inside of the house.

He swung round, blasted the catch of the inside door, pushed it open, leaped through and pulled it to, then he rushed to the air lock which led to the roof. That action had cut their possible supplies of oxygen by half. The house oxygen would simply leak out into the atmosphere. From now on, everything had to be done at top speed.

"Our next move," he said, "is simple. We catch the loop in a hook attached to a rope which goes through the pulley. Then 'Heave ho!' and straight up she goes."

"Will she go straight up?" asked Mary.

"As a matter of fact she probably won't," said Ted. "She may twist a bit. But so long as we get her the right way up it'll be O. K."

"Why don't the animals trample on the machines," asked Mary. "A rogue elephant on Earth would."

"They don't associate them with us," said Ted, fishing for the wire with the hook. "Their intelligence is too low. Ready? I've got it."

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Catching the loop was easy, and so was hauling the flier up until she got about level with the edge of the roof when they had to secure her with wire and refix the rope behind the wings. Then they pulled her up.

With the aid of a blaster, Ted cut out the seat and ripped out all unnecessary fittings—the inside walls, the ornamental work, the broken landing gear, everything except the bare necessities required to navigate the craft.

Mary picked up some of the pieces experimentally.

"You say you weigh a hundred and eighty pounds?" she said "There doesn't seem to be anything like a hundred and eighty here."

"No," said Ted. "I reckon she's made to carry a person of two hundred pounds or more. You weigh about a hundred and thirty, so all we have to take out is a hundred and ten." He checked over the wings and body, filled the fuel tank and tested the engine.

"Fair enough," said Mary. "We have enough oxygen in our suits for a day but what about some more in case of accidents? Also food and water would come in handy."

There was a resounding crash from the house.

Ted walked to the edge overlooking the air lock. "There's no chance of that," he said. "Look! The beasts have broken down the inner door and are in the house. From the noise, they're smashing up all the instruments. We can't go back."

"Then what do we do now?"

"We head the flier into the storm which is due soon. We attach the tow ring by a wire to a bolt on the roof and with the aid of the anti-gravities fly her like a kite until she gets clear. We then drop the wire and off we go."

"Splendid," said Mary, "and if the wind drops in the middle?"

"We break our necks," said Ted cheerfully.

"And if we fail to get clear, we get trampled by reptiles." Mary shivered a little. "There's no other chance. Let's get her ready."

"There's nothing more to be done except wait," said Ted after a short interval. "It won't be long."

"Oh yes there is," said Mary. "I've been dying to ask you what's in that book you pocketed marked 'Strictly Confidential'. We might fill in the time by looking at it."

Ted pulled the book from his pocket, opened the first page, glanced at it in amazement, and laughed. "Listen," he said.

" 'Instructions to Probationary Apprentices about to desert their post: Report to Headquarters to be confirmed in full rank.

" 'The object of this period is to find out whether you can live alone; whether you have enough common sense to see that it is no use staying where you can do no good; whether you can obey orders. Your getting possession of this book shows that you are suitable for our service. Your next test is getting back through the jungle. Many suc-

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ceeded but some have failed. Good luck to you!'"

Ted put down the book and jumped to his feet delightedly.

"I'm so glad," said Mary. "Somehow it's much better going away as a member of the Service rather than as a deserter—isn't it?"

The wind started to rise and the two made a dash for the flier.

"I doubt I'll have the strength to manage the controls," said Mary. "Can you help? Have you a first-class flier's certificate?"

"With honors," said Ted briefly. "One's necessary before you can join the Service. I'll fly the machine."

The gale lifted them high and the wire thrummed with the force of the wind. There was a moment of awful movement as Ted released the tow ring and then they were riding the storm.

"Now to land her without crashing," said Mary.

"I shall do that safely on Headquarters landing field," said Ted grinning, "but it will be a most almighty thump!"

It was.

THE END.

IN TIMES TO COME

This issue we have a cover by Brush, familiar heretofore on the inside art work; the next issue will have a cover by Miller, who illustrates—or perhaps it would be better to say "illuminates"—Hubbard's dianetics article in this issue. Each is new on the cover; your reactions will be of interest and help. I think you'll like Miller's cover next month, also, and I'm sure you'll like the story it illustrates—Katherine MacLean's "Incommunicado".

Also with us will, of course, be Part III of "Wizard of Linn"; van Vogt, as usual, has the full story of his yarn in that section. It's a rather important point he makes—one that's apt to be overlooked, and has been overloooked in many science-fiction stories. When a great building falls into ruin, the ruins don't settle uniformly, forming a regularly shaped, neatly rounded mound. When a great culture collapses—would every piece of it collapse to the same degree, in the same way, at the same rate? That can make important differences in the final results!

And there's an article coming up by J. J. Coupling, called "How To Build a Thinking Machine". It carries circuit-diagrams, and exact descriptions of a relatively simple electronic circuit that will think. It will learn, remember, and forget. But the most intriguing item, I think, is Coupling's extremely strong argument that the ideal thinking mechanism must have the following characteristics.

It *must not* learn perfectly the first time it experiences something.

It *must not* think in an orderly fashion!

It *must not* remember training patterns indelibly—it must be able to "forget", to un-learn them.

And while all of these points sound entirely the reverse of an ideal thinking mechanism's characteristic—the argument Coupling presents is intriguing indeed.

That article is not in the June issue, incidentally, but follows soon.

THE EDITOR.

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DIANETICS | THE EVOLUTION OF A SCIENCE

BY L. RON HUBBARD

A fact article of genuine importance. See the Editor's Page.

Illustrated by Miller

INTRODUCTION

The editor asked me to write this introduction to one of the most important articles ever to be published in Astounding SCIENCE FICTION, for some very good reasons. First, he wanted to make certain that you readers would *not* confuse Dianetics with thiotimoline or with any other bit of scientific spoofing. This is too important to be misinterpreted. Second, he wanted to demonstrate that the medical profession—or at least part of it—was not only aware of the science of Dianetics, but had tested its tenets and techniques, and was willing to admit that there was something to it.

There *is* something to it; there is so much to it, in fact, that its potentialities cannot yet be fully comprehended. Those of us who have worked with Dianetics—and that includes the Editor—have seen what it can do, and are convinced of its tremendous importance. I am not going to try to persuade you of its importance to you personally and to the human race; you must determine that for yourself. But while you are exercising your judicious, scientific skepticism, let me give you another point to consider in the meantime.

Dianetics is, in addition to all its other attributes, a thrilling adventure. Ron Hubbard, long a member of the Explorers Club, has gone exploring in the most obscure *terra incognita* of all—the human mind. He has explored a region wherein lies the mightiest power in the known Universe.

The mightiest power known in the Universe today is not the atomic bomb; that power was discovered, developed and controlled by the greater power of human thought. And human thought—our most intimate possession—has been the least known of all powers. Hubbard, in undertaking this research, undertook the greatest adventure any man can imagine—a stranger and more fantastic experience than any visit to the cities of the Arabian Nights. To understand the human mind, he had to find a path into the seat of madness, find a way through that zone of distortion of thought—and on the other side he found the most marvelous mechanism imaginable. He found a computing machine, whose functional capacities tran-

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scend those of any yet created by human efforts. It is a machine incapable of error, working with memory storage banks of infinite capacity and incredibly detailed exactitude.

And Hubbard's discovery of the true nature of this wonderful device, the Human Mind, gives us answers we have never had before. They are engineering answers, developed not by metaphysical word-juggling, but by the engineer's approach to a specific, defined problem. They contradict many of the basic tenets of modern psychotherapeutic theory, and manhandle many of the principles of psychology.

Modern psychiatry holds that predisposition to insanity is heritable, and that there is no cure for several forms of insanity—they can only be treated by surgically excising a portion of the brain in a prefrontal lobotomy, or—this is an actual and literal description of the operation known as a transorbital leukotomy—by electro-shocking a patient unconscious and running an ice-picklike instrument into the brain by thrusting it through the eye-socket back of the eyeball, and slashing the brain with it.

Dianetics denies this thesis. Insanity is not due to heritable factors—but it is contagious. And any insanity not based on actual organic destruction of the brain can be cured, to regain a more-than-normal mental stability and clarity! Dianetics offers hope where psychiatry can only be gloomy.

Dianetics substantiates a long-felt intuition that neurosurgery is not necessarily the best thing for the human race. A good many of us doctors have felt that the practice of subtotal euthanasia by destruction of the neural pathways to the prefrontal lobes was a medieval treatment. And yet it was the apparent lesser of two evils. Dianetics relegates surgical mutilation of the mind to the same level as blood-letting and blistering.

One final note: the following article will *not* supply you with sufficient information to make you a dianetic operator. That information will be given in a book being published by Hermitage House.* In order to practice any scientific technique successfully you must know more about it than can be told in an article of this length. Those of us who are interested in Dianetics want to be certain that, when it is used, it is used properly.

To sum up: I sincerely feel that Ron Hubbard has discovered the key which for the first time permits a true evaluation of the human mind and its function in health and in illness—the greatest advance in mental therapy since man began to probe into his mental makeup. Moreover he has contributed to the welfare of the race by deciding to give freely of the knowledge which took fifteen arduous years of study and research to acquire. There are many who would be tempted to keep this knowledge secret and thereby capitalize on it—but therein lies one of the beauties of Dianetics. A "clear" cannot help but be altruistic, especially when that altruism helps him better to survive.

In this present civilization of ours, where our techniques of destruction dangerously exceed our abilities to survive, there have been many thinkers engaged in a frantic search for a method to control Man's race-homicidal, race-suicidal tendencies. I feel certain that Dianetics is the answer—if *you* use it and know what you are doing. JOSEPH A. WINTER, M.D.

The optimum computing machine is a subject which many of us have studied. If you were building one, how would you design it?

First, the machine should be able to compute with perfect accuracy on any problem in the Universe and produce answers which were always and invariably right.

Second, the computer would have to be swift, working much more

*Dianetics: The Modern Science of Mental Health —Manual of Dianetic Therapy—Hermitage House, One Madison Ave., New York City. $3.00.

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quickly than the problem and process could be vocally articulated.

Third, the computer would have to be able to handle large numbers of variables and large numbers of problems simultaneously.

Fourth, the computer would have to be able to evaluate its own data and there would have to remain available within it not only a record of its former conclusions but the evaluations leading to those conclusions.

Fifth, the computer would have to be served by a memory bank of nearly infinite capacity in which it could store observational data, tentative conclusions which might serve future computations and the data in the bank would have to be available to the analytical portion of the computer in the smallest fractions of second.

Sixth, the computer would have to be able to rearrange former conclusions or alter them in the light of new experience.

Seventh, the computer would not need an exterior program director but would be entirely self-determined about its programming guided only by the necessity-value of the solution which it itself would determine.

Eighth, the computer should be self-servicing and self-arming against present and future damage and would be able to estimate future damage.

Ninth, the computer should be served by perception by which it could determine necessity-value. The equipment should include means of contacting all desirable characteristic in the finite world. This would mean color-visio, tone-audio, odor, tactile and self perceptions—for without the last it couid not properly service itself.

Tenth, the memory bank should store perceptions as perceived, consecutive with time received with the smallest possible time divisions between perceptions. It would then store in color-visio (moving), tone-audio (flowing), odor, tactile and self sensation, all of them cross-co-ordinated.

Eleventh, for the purposes of solutions, it would have to be able to create new situations and imagine new perceptions hitherto not perceived and should be able to conceive these to itself in terms of tone-audio, color-visio, odor, tactile and self sensation and should be able to file anything so conceived as imagined labeled memories.

Twelfth, its memory banks should not exhaust on inspection but should furnish to the central perceptor of the computer, without distortion, perfect copies of everything and anything in the banks in color-audio, tone-visio, odor, tactile and organic sensations.

Thirteenth, the entire machine should be portable.

There are other desirable characteristics but those listed above will do for the moment.

It might be somewhat astonishing, at first, to conceive of such a computer. But the fact is, the machine is in existence. There are about two

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billion of them in use today and many, many more billions have been made and used in the past.

In fact, you've got one. For we are dealing with the human mind.

The above is a generalization of

the optimum brain. The optimum brain, aside from the fact that it is not always capable of solving every problem in the Universe, basically works exactly like that. It should have color-visio (in motion), tone-audio (flowing), odor, tactile and organic memory recall. And it should have color-visio (in motion), tone-audio (flowing), odor, tactile and organic imagination, also recallable after imagining like any other memory. And it should be able to differentiate between actuality and imagination with precision. And it should be able to recall any perception, even the trivial, asleep and awake from the beginning of life to death. That is the optimum brain, that and much, much more. It should think with such swiftness that vocal pondering would be utterly unable to keep pace with a thousandth part of one computation. And, modified by viewpoint and educational data, it should be *always* right, its answers *never* wrong.

That is the brain you have, potentially. That is the brain which can be restored to you unless you have had some section of it removed. If it does not do these things, it is slightly out of adjustment.

It took a long time to arrive at the data that this was an optimum brain. In the beginning it was not realized that some people had color-visio—moving—recall, for instance, and that some did not. I had no idea that many people imagined, and knew they were imagining, in tone-audio, et cetera, and would have received

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with surprise the data that somebody could smell and taste last Thanksgiving's turkey when he recalled it.

Eleven years ago, when the researches which culminated in Dianetics (Gr. dianoua) thought—were started in earnest no such high opinion of the human brain was held. In fact, the project was not begun to trace brain function and restore optimum operation, but to know the key to human behavior and the code law which would reduce all knowledge.

My right to enter this field was an inquiring brain which had been trained in mathematics and engineering and which had a memory bank full of questions and far-flung observations.

It was the basic contention that the human mind was a problem in engineering and that all knowledge would surrender to an engineering approach.

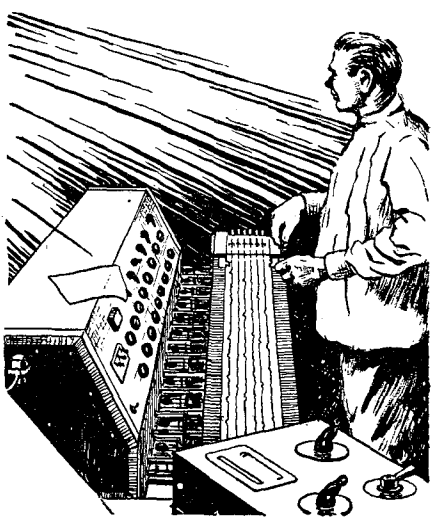
And another primary assumption was made:

All answers are basically simple.

As it stands today, the science of Dianetics and its results—which are as demonstrable as the proposition that water, at fifteen pounds per square inch and 212° F. boils—is an engineering science, built heuristically on axioms. It works. That is the only claim for Dianetics or chemistry. They may not be True. But they work and work invariably in the finite world.

When the problem had been shuffled around, in the beginning, and

when questions had been formulated to be asked of the Universe at large, there was no concept of the optimum brain. Attention was fixed upon the *normal* brain. The *normal* brain was considered to be the optimum brain. Attempts were made, when work finally got around to the problem of the brain itself to obtain results com-



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parable with the normal mind. Minds became aberrated. When restored they would be normal.

In fact, in the beginning, it was not even certain that minds could be restored. All that was required was an answer to existence and the reasons minds aberrated.

In a lifetime of wandering around many strange things had been observed. The medicine man of the Goldi people of Manchuria, the shamans of North Borneo, Sioux medicine men, the cults of Los Angeles, and modern psychology. Amongst the people questioned about existence were a magician whose ancestors served in the court of Kublai Khan and a Hindu who could hypnotize cats. Dabbles had been made in mysticism, data had been studied from mythology to spiritualism. Odds and ends like these, countless odds and ends.

If you were constructing this science, where would you have started? Here were all the various cults and creeds and practices of a whole world to draw upon. Here were facts to a number which makes 10^{21} binary digits look small. If you were called upon to construct such a science and to come up with a workable answer, what would you have assumed, gone to observe or computed?

Everybody and everything seemed to have a scrap of the answer. The cults of all the ages, of all the world seem, each one, to contain a fragment of the truth. How do we gather and assemble the fragments? Or do we give up this nearly impossible task and begin postulating our own answers?

Well, this is the story of how Dianetics was built. This, at least, was the approach made to the problem. Dianetics works, which is what an engineer asks, and it works all the time, which is what nature demands of the engineer.

First, attempts were made to discover what school or system was workable. Freud did occasionally. So did Chinese apuncture. So did magic healing crystals in Australia and miracle shrines in South America. Faith healing, voodoo, narco-synthesis— And, understand this right here, no mystic mumbo jumbo need apply. An engineer has to have things he can measure. Later the word "demon" is used. That's because Socrates describes one so well. Dianetic use of it, like Clerk-Maxwell's, is descriptive slang. But no wild immeasurable guesses or opinions were wanted. When an engineer uses only those, bridges break, buildings fall, dynamos stop and a civilization goes to wrack.

A primary need, in arriving at a dynamic principle of existence, was to discover what one wanted to know about existence. One does not have to dabble long with the gods to know that they point unvaryingly if divinely up a very blind alley. And an engineering study of mysticism demonstrates that mysticism embraces largely what it cannot hope to state precisely.

The first proposition went off

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something on this order. Let us find out what we cannot consider or do not need to consider to get an answer we can use. Some tests seemed to demonstrate that the exact identity of the Prime Mover Unmoved was not necessary to the computation. Man has been convinced for a long time that He started this affair, so no great gain could be made in getting disputive about it. Let us then take a level immediately below the Prime Mover Unmoved.

Now let us see what else falls into the category of data unnecessary to the computation. Well, we've studied telepathy, demons, the Indian rope trick and the human soul and so far we have yet to find any constants in this class of data. So let us draw a line below that as our highest level of necessary information and now call this our highest line.

What do we have left? We have the finite world, blue serge suits, Salinas Valley, the Cathedral at Rheims as a building and several decayed empires and roast beef for dinner. We have left only what we can perceive with no higher level of abstraction.

Now, how do we perceive and on what and with what? Ensues here a lot of time spent—1937—in computing out the brain as an electronic calculator with the probable mathematics of its operation plus the impossibility of such a structure capable of doing such things. Let us then rule out the necessity of knowing structure and use this as an analogy only which can become a variable in the equation if necessary.

Now what do we have? Well, we've been a little hard on demons and the human soul. These are popular but they refuse to stand out and submit to a thorough inspection and caliper mensuration and if they won't so co-operrate, then neither will we. And so two things come from this reduction of equation factors necessary to solution. First, existence is probably finite and second, finite factors alone answered the need of the problem.

Probably we could be very obtuse and mathematical here, but no matter. A good, workable heuristic principle, a *workable* one, is worth an infinity of formulas based on Authority and opinions which do *not* work.

All we can do is try the principle. We need a dynamic principle of existence. We look in Spencer and we find something which reads awfully good. It read good when he took it from Indian writings, the same place Lucretius got it. But it only pretends to be dynamic because it doesn't compute. We need a *dynamic* principle, not a description.

But what does a principle mean in a sphere this large? And doesn't it need a better definition? Let us then call it a dynamic lowest common denominator of exitsence.

Will such a lowest common denominator lead us straight up above the highest level we have set and send us spinning off with a fist full of variables and no answer? It had better not. So let us pose some more

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questions and see if they clarify the principle.

What can we know? Can we know where life came from? Not just now. Can we know where life is going? Well, that would be interesting but few of us will live to see that. So what can we know? Who, when, why, where, what—WHAT! We can know WHAT life is doing.

Let us postulate now that life started somewhere and is going somewhere. To know *where* it came from might solve a lot of problems but that seems unnecessary to know at this time for this problem. And the somewhere might be known too some day but again we do not need to know that. So now we have something for the equation which will stay in terms of constants. WHAT is life doing enroute?

Life is energy of some sort. The purpose seems to involve energy. We are being heuristic. No arguments necessary because all we want is something with a high degree of workability, that's all any scientist needs. If this won't work, we'll dream up another one and postulate and postulate until something does work.

What is energy doing? It's surviving—changing form, but surviving.

What is life doing? It's surviving.

Now maybe it is doing a whole lot more, but we'll just try this on for size. What is the lowest common denominator of all existence which we have so far found?

SURVIVE!

The only test of an organism is survival.

That can be computed.

We can even go so far as to make it colorful and say that there was a beginning of track and at this beginning of track Somebody said SURVIVE! He didn't say why and He didn't say until. All He said was SURVIVE!

Well, that's simple and it computes. It makes sense on the slide rule and it makes sense with a lot of activity and it seems pretty good—Let's see.

The brain was a computer-director evolved on the same principles and on the same plan as cells and by cells and is composed of cells. The brain resolved problems relating to survival, asked itself questions about survival, acted upon its own best conceived but personally viewpointed plan for survival.

If one sagged down toward unsurvival, one was goaded up the scale toward survival by pain. One was lured ahead by pleasure into survival. There was a graduated scale with one end in death and the other in immortality.

The brain thought in terms of differences, similarities and identities and all its problems were resolved on these lines and all these problems and all these activities were strictly and solely survival-motivated. The basic command data on which the body and brain operated was SUR-

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VIVE! That was all; nothing fell outside this.

It was postulated to see if it worked.

That was in 1938 after several years of study. The axioms began with SURVIVE!. SURVIVE! was the lowest common denominator of all existence. They proceeded through axioms as to what man was doing and how he was doing it. Nice definitions for intelligence, drive, happiness, good, evil and so forth fell into line. Suicide, laughter, drunkenness and folly all fell inside this, too, as it computed out.

These computations stood the tests of several years. And then, as you may have heard, came a war. But even wars end. Research was resumed, but now with the added necessity of applying the knowledge gained to the problems of friends who had not survived the war too well.

A researcher gets out on a rim of the unknown just so far and the guide books run out. In the libraries were thousands and thousands of mental cases, neatly recorded. *And not one case contained in it the essential data to its solution.* These cases might just as well have been written in vanishing ink for all the good they were. Beyond proving conclusively that people manifested strange mental aberrations they were worthless. How do you go about building a science of thought without being permitted to observe and without having any observed data?

Out of a multitude of personal observations in this and distant lands, it was the first task to find a constant. I had studied hypnotism in Asia. I knew hypnotism was, more or less, a fundamental. Whenever shamans, medicine men, exorcists or even modern psychologists go to work, they incline toward practices which are hypnotic.

But of what use is such a terrible, unpredictable variable as hypnotism. On some people it works. On most it doesn't. On those on whom it works it sometimes achieves good results, sometimes bad. Wild stuff, hypnotism.

The physical scientist, however, is not unacquainted with the use of a wild variable. Such erratic things usually hide real, important laws. Hypnotism was a sort of constant thread through all the cults—or hypnotic practices—but perhaps one might at least look at it.

So hypnotism was examined. A wild radical. The reason it was wild might be a good answer. The first investigation of it was quite brief. It did not need to be longer.

Examine a post-hypnotic suggestion. Patient in amnesia trance. Tell him that when he awakens he will remove his left shoe and put it on the mantle. Then tell him that he will forget he has been told and wake him up. He awakens, blinks for a while and then puts his foot forward and removes his shoe. Ask him why. "My foot's too hot." He puts the shoe on the mantle. Why? "I hate to put on a damp shoe.

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Warmer up here and it will dry." Keep this in mind, this experiment. The full reason for its importance did not appear for nine years. But it was recognized that, with various suggestions, one could create the appearance of various neuroses, psychoses, compulsions and repressions listed by the psychiatrist. The examination promptly went no further. One had too few answers yet. But it was clear, that *hypnotism and insanity were, somehow, identities.* A search was begun for the reason why.

For a long time and with many, many people attempts were made to unlock the riddle. What caused hypnotism? What did it do? Why did it behave unpredictably?

Examination was made of hypno-analysis. It sounds good in the texts but it doesn't work. It doesn't work for several reasons, first among them being that you can't hypnotize everybody. Further it works only occasionally, even when a person can be hypnotized. So hypno-analysis was buried along with the water-cure of Bedlam and the pre-frontal lobotomy and the demon-extraction techniques of the shamans of British Guiana and the search for the key which could restore a mind to normal was continued.

But hypnotism wouldn't stay quite dead. Narco-synthesis seemed a good lead, until some cases were discovered which had been "cured" by narco-synthesis. They were reworked with the technique just to discover what had occurred. Narco-synthesis sometimes seemed to fix a man up so his war neurosis could rise to even greater heights at some future date. No, that is not entirely fair. It produced slightly higher results than a magic healing crystal in the hands of an Australian medicine man. It seemed to do something beyond what it was supposed to do and that something beyond was bad. Here was another wild variable, a piece of the puzzle of insanity's cause. We knew WHAT man was doing. He was surviving. Somehow, some way, he occasionally became irrational. Where did hypnotism fit into this? Why did drug hypnotism affect people so adversely at times?

These people one met and worked with did seem to be trapped somehow by something which modern methods almost never touched. And why did whole nations rise up to slaughter nations? And why did religious zealots carry a banner and crescent across three quarters of Europe? People behave as if they'd been cursed by something. Were they basically evil? Was social training a thin veneer? Was the evil curse a natural inheritance from the tooth and claw animal kingdom? Was the brain *ever* capable of rationality? Hypnotism and narco-synthesis, unpredictable radicals, refused for a time to divulge answers.

Out of orbit again and without tools with which to work, it was necessary to hark back to the techniques of the Kayan Shaman of Borneo, amongst others. Their theory is crude; they exorcise de-

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mons. All right. We postulated that man is evil that the evil is native. Then we ought to be able to increase the civilized veneer by planting in him more civilization, using hypnotism. So the patient usually gets worse. That postulate didn't work. Provisional, let's try the postulate that man is good and follow its conclusions. And we suppose something such as the Borneo Shaman's *Toh* has entered into him which directs him to do evil things.

Man has believed longer that demons inhabit men than man has believed they did not. We assume demons. We look for some demons, one way or another. *And we found some!*

This was a discovery almost as mad as some of the patients on hand. But the thing to do was try to measure and classify demons.

Strange work for an engineer and mathematician! But it was found that the "demons" could be classified. There were several "demons" in each patient, but there were only a few classes of "demons." There were audio demons, sub-audio demons, visio-demons, interior demons, exterior demons, ordering demons, directing demons, critical demons, apathetic demons, angry demons, bored demons and "curtain" demons who merely occluded things. The last seemed the most common. Looking into a few minds established soon that it was difficult to find anyone who didn't have some of these demons.

It was necessary to set up an optimum brain. That brain would be postulated, subject to change. It would be the combined best qualities of all brains studied. It would be able to visualize in color and hear with all tones and sounds present, all memories necessary to thought. It would think without talking to itself, thinking in concepts and conclusions rather than words. It would be able to imagine visually in color anything it cared to imagine and hear anything it cared to imagine it would hear. It was discovered eventually that it could also imagine smells and tactiles but this did not enter into the original. Finally it would know when it was recalling and know when it was imagining.

Now, for purposes of analogy it was necessary to go back to the electronic computer idea conceived in 1938. Circuits were drawn up for the visio and audio recall, for color and tone recall, for imagination visio and audio creation and color and tone creation. Then were drawn the memory bank circuits. All this was fairly easy at this time since some extensive work had been done on this in the thirties.

With this diagram, further circuits were set up. The optimum brain was a plain circuit. To this were added the "demon" circuits. It was found that by very ordinary electronics one could install every kind of a "demon" that had been observed.

The "demons," since none of them consented to present themselves for a proper examination as demons, were, it was concluded, installed in

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the brain in the same way one would install a new circuit in the optimum brain. But as there was just so much brain, it was obvious that these electronic "demons" were using parts of the optimum brain and that they were no more competent than the optimum brain inherently was. This was more postulating. All one wanted was a good result. If this hadn't worked something else would have been tried.

Thus the solution was entered upon. While the human brain is a shade too wonderful an instrument to be classified with anything as clumsy as contemporary electronics, as marvelous as modern electronics are, the analogy stands. It stands as an analogy. The whole science would hang together brightly now without that analogy. But it serves in this place.

There are no demons. No ghosts and ghouls or *Tohs*. But there are aberrative circuits. So it was reasoned. It was a postulate. And then it became something more.

One day a patient fell asleep. When awakened he was found to be "somebody else." As "somebody else" he was questioned very carefully. This patient, as "himself," had a sonic memory block, an audio memory block and was color-blind. He was very nervous ordinarily. Just now, awakened into being "somebody else" he was calm. He spoke in a lower voice tone. Here, obviously, one was confronting one of these electronic screw-ups the savants call schizophrenics. But not so. This was the basic personality of the patient himself, possessed of an optimum brain!

It was very rapidly established that he had color-visio recall on anything, tone-audio recall, tone-audio and color-visio imagination and entire co-ordinative control. He knew when he was imagining and when he was recalling and that, too, was something he had not been able to do before.

He wanted to know something. He wanted to know when the operator was going to help him get himself squared around. He had a lot of things to do. He wanted to help his wife out so she wouldn't have to support the family. How unlike the patient of an hour before!

He obligingly did some mental computations with accuracy and clarity and then he was permitted to lie down and sleep. He woke up with no recollection of what had happened. He had his old symptoms. Nothing could shake those electronic blocks. He didn't even know if he had eaten lunch, the color of my scarf, and as for his wife, served her right for being a condemned woman.

This was a first introduction to basic personality. It was a long way from a last acquaintance. It was found that it was possible to contact optimum brain operation in a number of people.

And the basic personalities contacted were invariably, strong, hardy and constructively good! They were the same personalities as the patients

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had in a normal state minus certain mental powers, plus electronic demons and plus general unhappiness. I found that a "hardened criminal" with an obvious "criminal mind" was, in basic personality, a sincere, intelligent being with ambition and co-operativeness.

This was incredible. If this was basic brain, then basic brain was good. Then man was basically good. Social nature was inherent! If this was basic brain—

It was. That is a "clear". But we pull ahead of the story.

People were uniformly miserable being aberrated. The most miserable patient on the rolls had an aberration that made her act "happy" and the most nervous aberee one would ever care to encounter had a mastering aberration about being always "calm". She said she was happy and tried to make herself and everyone believe it. He said he was calm. He instantly flew into a nervous fit if you told him he wasn't calm.

Tentatively and cautiously a conclusion was drawn that the optimum brain is the unaberrated brain, that the optimum brain is also the basic personality, that the basic personality, unless organically deranged, was good. If man were basically good, then only a "black enchantment" could make him evil.

What was the source of this enchantment?

Did we admit superstitions and demons as actualities and suppose the source was something weird and wonderful in the way of ectoplasm? Or did we part company with many current beliefs and become something a little more scientific?

The source, then, must be the exterior world. A basic personality, so anxious to be strong, probably would not aberrate itself without some very powerful internal personal devil at work. But with the devils and "things that go boomp in the night" heaved into the scrap heap, what did we have left? There was the exterior world and only the exterior world.

Good enough; we'll see if this works again. Somehow the exterior world gets interior. The individual becomes possessed of some unknowns which set up circuits against his consent, the individual is aberrated, and is less able to survive.

The next hunt was for the unknown factor. The track looked pretty fair, so far, but the idea was to formulate a science of thought. And a science, at least to an engineer, is something pretty precise. It has to be built on axioms to which there are precious few if any exceptions. It has to produce predictable results uniformly and *every time*.

Perhaps engineering sciences are this way because natural obstacles oppose the engineer, and matter has a rather unhandy way of refusing to be overlooked because someone has an opinion. If an engineer forms an opinion that trains can run in thin air and so omits the construction of a bridge across a stream, gravity is

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going to take over and spill one train into one stream.

Thus, if we are to have a science of thought, it is going to be necessary to have workable axioms which, applied with techniques, will produce uniform results in all cases and produce them invariably.

A great deal of compartmentation of the problems had already been done, as previously mentioned or in the course of work. This was necessary in order to examine the problem proper which was man in the Universe.

First we divided what we could probably think about and had to think about from what we probably didn't have to think about, for purposes of our solution. Next we had to think about all men. Then a few men. Finally the individual man and at last a portion of the aberrative pattern of an individual man.

How did the exterior world become an interior aberration?

There were many false starts and blind passages just as there had been in determining what an optimum brain would be. There were still so many variables and possible erroneous combinations in the computation that it looked like something out of Kant. But there is no argument with results. There is no substitute for a bridge heavy enough to hold a train.

I tried, on the off-chance that they might be right, several schools of psychology — Jung, Adler. Even Freud. But not very seriously because over half the patients on the rolls had been given very extensive courses in psycho-analysis by experts, with no great results. The work of Pavlov was reviewed in case there was something there. But men aren't dogs. Looking back on these people's work now, a lot of things they did made sense. But reading their work and using it when one did *not* know, they didn't make sense, from which can be concluded that rear-view mirrors six feet wide tell more to a man who is driving with a peephole in front than he knew when he was approaching an object.

Then came up another of a multitude of the doctrines which had to be originated to resolve this work. *The selection of importances.* One looks at a sea of facts. Every drop in the sea is like every other drop. Some few of the drops are of vast importance. How to find one? How to tell when it is important? A lot of prior art in the field of the mind—and as far as I was concerned, all of it—is like that. Ten thousand facts, all and each with one apparent unit importance value. Now unerringly select the right one. Yes, once one has found, by some other means, the right one, it is very simple to look over the facts and pick out the proper one and say, "See? There it was all the time. Old Whoosis knew what he was doing." But try it before you know! It's a cinch Old Whoosis did not know or he would have red-tabbed the fact and thrown the others away. So, with this new doctrine of the selection of importances, all data not of personal testing or discovery

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was jettisoned. I had been led up so many blind alleys by unthorough observation and careless work on the part of forerunners in this business that it was time to decide that it was much, much easier to construct a whole premise than it was to go needle-in-the-haystacking. It was a rather desperate turn of affairs when this came about. Nothing was working. I found I had imbibed, unconsciously, a lot of prior errors which were impeding the project. There were literally hundreds of these "why everybody knows that—" which had no more foundation in experimentation or observation than a Roman omen.

So it was concluded that the exterior world got interior through some process entirely unknown and unsuspected. There was memory. How much did we know about memory? How many kinds of memory might there be? How many banks was the nervous system running on? The problem was not *where* they were. That was an off-track problem. The problem was *what* they were.

I drew up some fancy schematics, threw them away and drew some more. I drew up a genetic bank, a mimic bank, a social bank, a scientific bank. But they were all wrong. They couldn't be located in a brain as such.

Then a terrible thought came. There was this doctrine of the selection of importances. But there was another, earlier doctrine—the introduction of an arbitrary. Introduce an arbitrary and if it is only an arbitrary, the whole computation goes out. What was I doing that had introduced an arbitrary? Was there another "why, everybody knows that—" still in this computation?

It's hard to make your wits kick out things which have been accepted, unquestioned, from earliest childhood, hard to suspect them. Another sea of facts, and these in the memory bank of the computer trying to find them.

There was an arbitrary. Who introduced it I don't know but it was probably about the third shaman who practiced shortly after the third generation of talking men had begun to talk.

Mind *and* body.

There's the pleasant little hooker. Take a good look at it. Mind *AND* body. This is one of those things like a ghost. Somebody said they saw one. They don't recall just who it was or where but they're *sure*—

Who said they were separate? Where's the evidence? Everybody who has measured a mind without the body being present please raise both his hands. Oh, yes, sure. In books. I'm talking to you but I'm not there in the room with you right now. So mind is naturally separate from body. Only it isn't. A man's body can leave footprints. Those are products of the body. The products of the mind can also be viewed when the body is not there, but these are *products of* and the product of the object is not the object.

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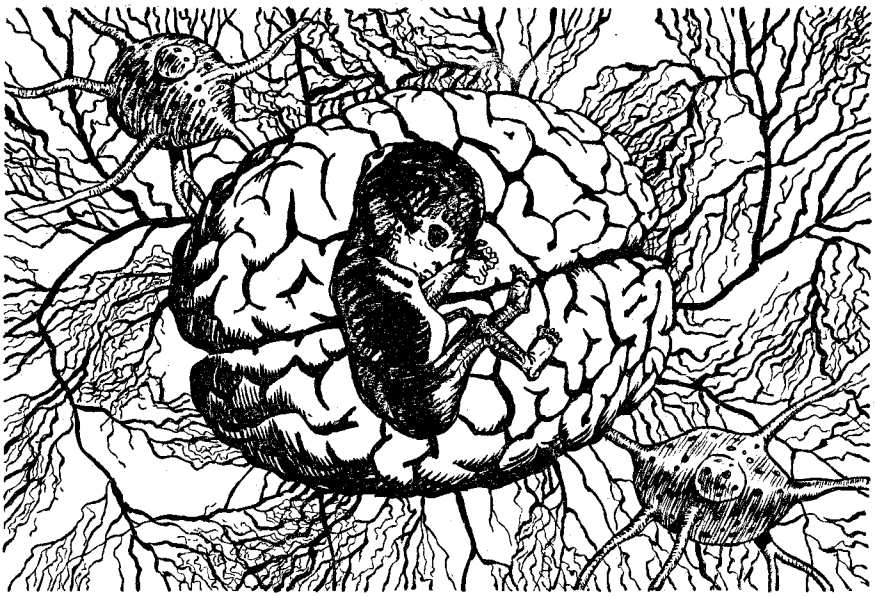

So let's consider them a unity. Then the body remembers. It may co-ordinate its activities in a mechanism called the brain, but the fact is that the brain is also part of the nervous system and the nervous system extends all through the body. If you don't believe it, pinch yourself. Then wait ten minutes and go back to the time you pinched yourself. Time travel back. Pretend you are all back there. You will feel the pinch; that's memory.

All right. If the body remembers and if the mind and body are not necessarily two items, then what memories would be the strongest? Why, memories that have pain in them, of course. And then what memories would be the strongest? Those which would have the most physical pain. But these are not recallable!

Maybe it's the wrong postulate, maybe people are in fifty pieces not just one, but let's try it on for size.

So I pinched a few patients and made them pretend they had moved back to the moment of the pinch. And it hurt them again. And one young man, who cared a great deal about science and not much about his physical being volunteered for a nice, heavy knockout.

And I took him back to it and he recalled it.

Then came the idea that maybe people remembered their operations. And so a technique was invented and the next thing I knew I had a

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memory of a nitrous oxide dental operation laid wide open and in recall, complete with pain.

A great deal of experimentation and observation disclosed the fact that there were no moments of "unconsciousness". And that was another misconception which had held up man's progress.

"Unconsciousness". Some day the word will either be gone or have a new meaning because just now it doesn't really mean a thing.

The *unconscious mind* is the mind which is *always conscious.* So there is no "unconscious mind". And there is no "unconsciousness". This made modern psychology look like Tarawa after the marines had landed; for this is about as easy to prove as the statement that when an apple is held three feet in the air and let fall, it drops, conditions being normal.

It was necessary, then, to redraw all the circuit diagrams and to bring forth some terminology which would not be quite as erroneous as "unconsciousness" and "the unconscious mind".

For handy purposes, in view of the fact that I had got myself into difficulties before by using words with accepted meanings, I turned some adjectives into nouns, scrambled a few syllables and tried to get as far as possible from the focus of infection: Authority. By using old terms, one interposes, in communication, the necessity of explaining away an old meaning before he can explain the new one. A whole chain of thought can get thoroughly jammed up in trying to explain that while this word meant - - - - it now means - - - -. Usually, in communications, one is not permitted to get beyond an effort to explain one does not mean - - - -.

Now there is no reason here to go into an evolution of terms in Dianetics. The cycle of the evolution is not yet complete. And so I will place here terms which were long afterwards conceived. They are not yet stet. But their definitions are not quibbles: the order of definition is clear in the order of apples are apples.

The important thing is what we are defining. There were several heuristic principles on which the initial work was based which were "understood". One was that the human mind was capable of solving some of the riddles of existence. At this stage in the evolution of Dianetics, after "unconsciousness" had been smoked out of the "why, everybody knows that—" class of information and labeled it for what it was, an error, it was necessary to look over some of the "understood" postulates of 1938. And one of those "everybody knows" postulates has been that the human mind is not capable of understanding the workings of the human mind.

And "everybody knew that" the human mind was liable to err, that it was stupid, and was very easily

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aberrated by such small things as because papa loved mama and Jimmy wanted to love mama too.

And "everybody knew that" the workings of the human mind were enormously complex; so involved that a complete direct solution of the problem was impossible. That, in effect, the human mind was a Rube Goldberg device built up of an enormously unstable and delicately balanced pile of odd-shaped bits of emotion and experience, liable to collapse at any time.

From the engineering viewpoint, that seems a little strange. Two billion years of evolution, a billion successive test models, would tend to produce a fairly streamlined, functional mechanism. After that much experience, animal life would be expected to produce a truly functional mechanism—and Rube Goldberg's devices are amusing because they are so insanely nonfunctional. It somehow doesn't seem probable that two billion years of trial and error development could wind up with a clumsy, complex, poorly balanced mechanism for survival—and that jerry-built thing an absolute master of all other animal life!

Some of those "everybody knows that—" postulates needed checking—and checking out of the computation.

First, everybody knows that "to err is human". And second everybody knows that we are pawns in the hairy grasp of some ogre who is and always will be unknown.

Only this didn't sound like engineering to me. I'd listened to the voodoo drums in Cap Haitien and the bullhorns in the lama temples of the Western Hills. The people who beat those drums and blew those horns were subject to disease, starvation and terror. Looked like we had a ratio at work here. The closer a civilization—or a man—moved toward admitting the ability of the human mind to compute—the closer the proposition was entered that natural obstacles and chaos were susceptible to orderly solution—the better he—or they—fared in the business of living. And here we were back with our original postulate again, SURVIVE! Now this computation would be warranted only if it worked.

But it was a not unwarrantable conclusion. I had had experience now with basic personality. Basic personality could compute like a well greased Univac. It was constructive. It was rational. It was sane.

And so we entered upon the next seven league boot stride in this evolution. What was sanity? It was rationality. A man was sane in the ratio that he could compute accurately, limited only by information and viewpoint.

What was the optimum brain? It was an entirely rational brain. What did one have to have to be entirely rational? What would any electronic computer have to have? All data must be available for inspection. All data it contained must be derived

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from its own computation or it must be able to compute and check the data it is fed. Take any electronic calculator . . . no, on second thought, don't take them. They're not smart enough to be on the same plane with the mind because they are of a greatly sub order of magnitude. Very well, let's take the mind itself, the optimum mind. Compare it to itself. When did man become sentient? It's not absolutely necessary to the problem or these results to know just when or where man began to THINK, but let's compare him to his fellow mammals. What does he have that the other mammals don't have? What can he do that they can't do? What does he have that they have?

All it takes is the right question. What does he have that they have? He does have something—and he has something more than they have. Is it the same order? More or less.

You never met a dog yet that could drive a car, or a rat that could do arithmetic. But you have men that couldn't drive a car, and men that couldn't do much better with arithmetic than a rat. How did such men vary from the average?

It seemed that the average man had a computer that was not only better, it was infinitely finer than any animal's brain. When something happens to that computer, man is no longer MAN but a dog or a rat, for purposes of comparison in mental power.

Man's computer must be pretty good. After all those millions of years of evolution, it should be—in fact it should, by this time, have evolved a perfect computer, one that didn't give wrong answers because it couldn't make a mistake. We've already developed electronic computing machines so designed, with such built-in self-checking circuits, that they *can't* by their very nature, turn out a wrong answer. Those machines stop themselves and summon an operator if something goes wrong so that the computer starts producing a wrong answer. We know how to make a machine that would not only do that, but set up circuits to find the error, and correct the erring circuit. If men have figured out ways to do that with a machine already—

I had long since laid aside the idea that one could do this job by dissecting a neurone. Dead, they don't talk. Now I had to lay aside the idea that the brain's structural mechanism could even be guessed at this stage. But working on the heuristic basis of what-works, it is not necessary to know *how* it is done in terms of physical mechanism if we can show that it *is* done. It was convenient to use electronic circuits as analogs, and the analogy of an electronic brain, because I knew the terms of these things. The brain may or may not run on electric currents; what things can be measured in and around it by voltmeters are interesting. But electricity itself is measured indirectly today. Tem-

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perature is measured by the coefficient of expansion caused by temperature. Encephelographs are useful working around a brain but that doesn't mean that the brain is as clumsy and crude as a vacuum tube rig. This was a necessary step because if the problem were to be solved one had to suppose that the brain could be patched up and with some method decidedly short of surgery.

So here was what I seemed to be working with: a computing machine that could work from data stored in memory banks, and was so designed that the computer circuits themselves were inherently incapable of miscomputation. The computer was equipped with sensing devices—the sensory organs—which enabled it to compare its conclusions with the external world, and thus to use the data of the external world as part of the checking feedback circuits. If the derived answers did not match the observed external world, since the computing circuits were inherently incapable of producing a wrong computation, the data used in the problem must itself be wrong. Thus, a perfect, errorless computer can use external world data to check the validity of and evaluate its own data input. *Only* if the computational mechanism is inherently error-proof would this be possible. But men have already figured out mechanically simple ways of making an error-proof computer—and if man can figure it out at this stage of the game, two billion years of evolution could *and would*.*

How did the mind work? Well, to solve this problem we did not have to know. Dr. Shannon commented a few months ago that he had tried every way he could think of to compute the material in the memory bank of the brain, and he had been forced to conclude that the brain could not retain more than three months' worth of observations if it recorded everything. And dianetic research reveals that everything is recorded and retained. Dr. McCulloch of the University of Illinois postulating the electronic brain last year is said to have done some computation to the effect that if the human brain cost a million dollars to build, its vacuum tubes would have to cost about 0.1 cent each, that the amount of power it would consume would light New York City and that it would take Niagara Falls

*The system of the error-proof computer is easily understood. Imagine a vacuum-tube computer circuit. If one tube fails to function properly, the computer will turn out wrong answers every time that tube is required in the computation circuit. But suppose we set up two identical computers; now if a vacuum tube fails, the two, running the same problem in parallel, will get different answers—which indicates at once that there is a defect somewhere. This system is used in present computers which, when the different-answer situation arises, summon the operator. But if *three* computers simultaneously calculate in parallel on each problem, it is possible to determine not only that a defect exists in one computer chain, but also to determine which contains the defect, and what the correct answer is. Now the defective unit can be located and replaced by the machine itself. No machines man has made have that feature; it requires a triple unit, and units are too expensive. But man's brain uses some eighteen billion neurones; the brain can afford to run all problems in triplicate, and must to achieve an inherently error-free computer. Only by having an error-free computer can the immensely important function of data-evaluating be made possible.

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to cool it. To these competent gentlemen we deliver up the problems of structure. To date Dianetics has not violated anything actually known about structure. Indeed, by studious application of dianetic principles, maybe the problem of structure can be better approached. But at a swoop, we have all this off our minds. We are dealing with function and ability and the adjustment of that function to the end of obtaining maximum operation. And we are dealing with an inherently *perfect* calculator.

We are dealing with a calculator which runs entirely on the principle that it must be right and must find out why if it isn't right. Its code might be stated as "And I pledge myself to be right first, last and always and to be nothing but right and never to be, under any circumstances, wrong."

Now this is what you would expect of an organ dedicated to computing a life and death matter like survival. If you or I were building a calculator, we'd build one that would always give correct answers. Now, if the calculator we built was also itself, a personality, it would maintain that it was right as well.

Having observed this computer in its optimum state as the basic personality, the conclusion was very far from a mere postulate. And so we will call this computer the "analytical mind". We could sub-divide things further and get complicated by saying that there is an "I" as well as a computer, but this leads off in some direction or other which, as things work out, isn't of much use at this time. And so the "analytical mind" or the "analyzer" is a computer and the "I" for our purposes. All we want is a good *workable solution.*

The next thing we must consider is what apparently makes man a sentient being and that consideration leads us into the conclusion that possession of this analyzer raises man far above his fellow mammals. For as long as man is rational, he is superior. When that rationality reduces, so does his state of being. So it can be postulated that it is this analyzer which places the gap between a dog and a man.

Study of animals has long been popular with experimental psychologists, but they must not be misevaluated. Pavlov's work was interesting; it proved dogs will be dogs. Now by light of these new observations and deductions it proved more than Pavlov knew. It proved men *weren't* dogs. Must be an answer here somewhere. Let's see. I've trained a lot of dogs. I've also trained a lot of kids. Once I had a theory that if you trained a kid as patiently as you trained a dog, then you would have an obedient kid. Didn't work. Hm-m-m. That's right. It didn't work. The more calmly and patiently one tried to make that kid into a well-trained dog— "Come here" and he'd run away—hm-m-m. Must be some difference between kids and dogs. Well, what do dogs have that kids don't have. Mentally, probably nothing. But what do kids have that

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dogs don't have. A good analytical mind!

Let us then observe this human analytical mind more closely. It must have a characteristic dissimilar to animal minds—minds in lower orders of mammals. We postulate that this characteristic must have a high survival value, it is evidently so prominent and widespread and the analyzer—hm-m-m.

The analyzer must have some quality which makes it a slightly different thinking apparatus than those observed in rats and dogs. Not just sensitivity and complexity. Must have something newer and better. Another principle? Well, hardly a whole principle but—

The more rational the mind, the more sane the man. The less rational the mind, the closer man approaches in conduct his cousins of the mammalian family. What makes the mind irrational?

I set up a series of experiments, using the basic personalities I could contact above or below the level of the aberrated personalities and in these confirmed the clarity and optimum performance of the basic computer. Some of these patients were quite aberrated until they were in an hypnotic amnesia trance at which time they could be freed of operator control. The aberrations were not present. Stutterers did not stutter. Harlots became moral. Arithmetic was easy. Color-visio, tone-audio recall. Color-visio, tone-audio imagination. Knowledge of what was imagination and what wasn't. The "demons" had got parked somewhere. The circuits and filters causing aberration had been by-passed, to be more precisely technical and scientific.

Now let's postulate that the aberrative circuits have been somehow introduced from the external world—covered that ground pretty well, pretty solid ground.

And here's an answer. The introduced by-pass circuits and filters became the aberrations in some way we did not yet understand. And what new complexion did this give the analyzer?

Further research tended to indicate that the answer might be contained in the term "determinism". A careful inspection of this computation confirm observations. Nothing was violated. Did it work?

Let's postulate this perfect computer. It is *responsible*. It has to be responsible. It is *right*. It has to be right. What would make it wrong? Exterior determinism beyond its capacity to reject. *If it could not kick out a false datum it would have to compute with it.* Then, and only then, would the perfect computer get wrong answers. A perfect computer had to be *self*-determined within the limits of necessary efforts to solve a problem. No self-determinism, bad computation.

The machine had to be in a large measure *self-determined* or it would not work. That was the conclusion.

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Good or bad, did it lead to further results?

It did.

When exterior determinism was entered into a human being so as to overbalance his self-determinism the correctness of his solutions fell off rapidly.

Let's take any common adding machine. We put into it the order that all of its solutions must contain the figure 7. We hold down 7 and put on the computer the problem of 6x1. The answer is wrong. But we still hold down 7. To all intents and purposes here, that machine is crazy. Why? Because it won't compute accurately so long as 7 is held down. Now we release 7 and put a very large problem on the machine and get a correct answer. The machine is now sane—rational. It gives correct answers. On an electronic computer we short the 7 so it is always added in, no matter what keys are punched. Then we give the machine to a storekeeper. He tries to use it and throws it on the junk heap because it won't give correct answers and he doesn't know anything about troubleshooting electronics and cares less. All he wants is a correct total.

Admitting the analytical mind computation, and admitting it only so long as it works, where does it get a held-down 7—an enforced wrong datum?

Now a computer is not necessarily its memory bank. Memory banks can be added and detached to a standard computer of the electronic type. Where do we look for the error? Is it in the memory bank?

The search for what was holding down 7 involved quite a little hard work and speculation and guesses. Some more work had to be done on the computer—the analytical mind. And then came what seemed to be a bright thought. Supposing we set up the whole computer as the demon. A demon that is always and invariably right. Let's install one in a brain so that the computer can project outside the body and give the body orders. Let's make the computer a circuit independent of the individual. Well, hypnotism has some uses. Good tool for research sometimes even if it is a prime villain in aberration.

Two things happened the moment this was done. The computer could direct the body as an "exterior entity" and draw on the memory banks at will for anything. *Seven was no longer held down.*

Naturally this was a freak test, one that could be set up only in an excellent hypnotic patient. And it could be installed only as a temporary thing.

This artificial demon knew *everything.* The patient could hear him when the patient was awake. The demon was gifted with perfect recall. He directed the patient admirably. He did computations by moving the patient's hand—automatic writing—and he did things the patient evidently could not do. But why could it? We had artificially split the analyzer away from the

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aberrated patient, making a new by-pass circuit which by-passed all the aberrated circuits. This would have been a wonderful solution if it had not been for the fact that the patient was soon a slave to the demon and that the demon, after a while, began to pick up aberrations out of the plentiful store the patient had. But it served to test the memory banks.

Something must be wrong about these banks. Everything else was in good order. The banks contained an infinity of data which appalled one in its very completeness. So there ensued a good, long search to find something awry in the banks. In amnesia sleep or under narco-synthesis, the banks could be very thoroughly ransacked. By automatic writing, speaking and clairvoyance they could be further tapped.

This was a mad sort of way to go about things. But once one started to investigate memory banks, so much data kept turning up that he had to continue.

There's no place here for a recital of everything that was found in the human memory bank, its completeness, exactness and minuteness or its fantastically complicated, but very smart cross-filing system. But a resumé is necessary of some high points.

In the first place the banks contain a complete color-video record of a person's whole life, no matter the "demon" circuits. The last occlude or falsify. They do not alter the bank or the accuracy of the bank. A "poor" memory means a curtained memory, the memory being complete. *Every perception observed in a lifetime is to be found in the banks.* All the perceptions. In good order.

Memories are filed by time. They have an age and emotional label, a state-of-physical-being label and a precise and exhaustive record of everything perceived by organic sensation, smell, taste, tactile, audio and visio perceptics *plus* the train of thought of the analyzer of that moment.

There is no inaccuracy in the banks. Inaccuracy can, of course, be caused by surgery or injury involving actually removed portions. Electric shock and other psychiatric efforts are equivocal. Pre-frontal lobotomy is such certain and complete mind-murder that one cannot be certain thereafter of anything in the patient except zombiism.

Anyway, the memory banks are so fantastically complete and in such good order behind the by-pass circuits in any man not organically tampered with, that I very nearly wore out the rug trying to conceive it. Very well, there was something between the banks and the analyzer. Must be. The banks were complete. The circuits were intact. In any patient organically sound—and that includes all patients who have psychosomatic ills—the basic personality was apparently intact, the banks were intact. But the banks and the analyzer somehow did not track.

Well, let's take another look. This is an engineering problem. So far

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it has surrendered beautifully to engineering thought and computation. Apparently it should go right on surrendering. But let's look at Freud. There's his Censor. Let's see if there's a censor between the banks and the analyzer.

That folded up in about two seconds Mex. The censor is a composite of by-pass circuits and is about as natural and necessary to a human being as the fifth wheel on a monocycle. There isn't any censor. Served me right for trying to lean on Authority. In terms of authority, if you can spell it it's right. In terms of engineering, if it can't be found and measured in some fashion, it's probably absent.

I rechecked the memory banks. How was I withdrawing data? I was using automatic writing for some, by-pass circuit for others, direct regression and revivification on the old line Hindu principle for others. I set about trying to classify what kind of data I was getting with each method of recall. All of a sudden the problem fell apart. By automatic writing I was getting data not available to the analyzer. By by-pass I was getting data not available otherwise. By regression and revivification material was being procured only a little better than could be recalled by the tranced subject. The data I could check was found to be invariably accurate by any of these methods. What was the difference between automatic writing data and simple trance data?

I took a patient's automatic data and regressed him to its period. He could not recall it. The data concerned a broken leg and a hospital. I bucked him into the incident by main force.

The patient received a very sharp pain in the area of the old break.

This was a long way from hypoanalysis. This was an effort to find an interposition between memory banks and analyzer, not an effort to relieve "traumatic experiences".

And there was the answer. Why not? Very simple. It had been sitting right there staring at me since 1938. Oh, these six-foot wide rear-view mirrors! I had even made a law about it.

The function of the mind included the avoidance of pain. Pain was unsurvival. Avoid it.

And that's it—the way to hold down seven! You can hold it down with physical pain! The exterior world enters into the man and becomes memory bank. The analyzer uses memory bank. The analyzer uses the exterior world. The analyzer is caught between yesterday's exterior world now interior and today and tomorrow's exterior world, still exterior.

Can it just be that this analyzer gets its data on one perceptic circuit. Can it be that that perceptic circuit carries yesterday and today both? Well, however that may be, the analyzer certainly behaves to yesterday's interior world the same way it behaves to today's exterior world so far as the avoidance of pain goes. The law works both ways.

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The analyzer avoids yesterday's pain as well as today's pain. Well, that's reasonable. If you avoid yesterday's pain in today's environment, you have a much better chance to survive. In fact— But see here, there's more to the problem than this. If the analyzer had a clear view of yesterday's pain it could better avoid it in today. That would be good operation.

That was the "flaw" in the machine. But it was a highly necessary "flaw." Just because an organism is built to survive, molded to survive and intended to survive does not mean that it will, as a matter of course, be perfect.

But the analyzer *was* perfect.

The banks were perfect.

The analyzer just plain wouldn't ever let the irrationalities of exterior world inside as long as it could help it.

As long as it could help it!

I was probing now for the villain of the piece. He was not found for a while. Many experiments were made. Efforts were made to make several patients well by simply breaking through the pain wall the analyzer was "seeking to avoid". A lot of painful incidents were broken, mental and physical anguish by the library full, and without much relief. The patients relapsed.

Then it was discovered that when a patient was bucked through a period when he was "unconscious," he showed some improvement. Then it was discovered that these "unconscious" periods were rather like periods of hypnosis driven home by pain. The patient responded as though the "unconscious period" had been post-hypnotic suggestion!

From this series of experiments a prime datum was picked up. You relieve the pain and the "unconsciousness" and the suggestive power goes away. The subject did not have to have any of the mumbo jumbo of hypnosis in this "unconscious period". But every perceptic perceived tended to aberrate him.

I did not realize until then that I was playing tag with a hitherto unappreciated mid-evolution step in man. If he was once a poly-wog, he had never lost any of the parts he had evoluted through. How does a fish think?

Well, let's see how a fish would respond to pain. He is swimming in brackish water of yellow color over a green bottom, tasting shrimp. A big fish hits him a whack, misses but does not kill him. Our fish lives to come back another day. This time he swims into an area of brackish water with a black bottom. He gets a little nervous. Then the water becomes a yellow color. The fish becomes very, very alert. He coasts along and gets over a green bottom. Then he tastes shrimp and instantly swims away at a terrific rate.

Now, what if man still had his lower organism responses? Well, it seemed, on experiment, that he did. Drug him with ether and hurt him. Then give him a whiff of ether and he gets nervous. Start to put him

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out and he begins to fight. Other experiments all gave the same conclusion.

Lower organisms can be precisely and predictably determined in their responses. Pavlov's dogs. Any dog you ever trained. The dog may have something of an analyzer too, but he is a pushbutton animal. And so is man. Ah, yes, so is man. You know, just like rats.

Only man *isn't!* Man has a wide power of choice. Interfere with that wide power and there's trouble brewing. Aberrate him enough and he's unpredictably pushbuttonable. Cut his brain out with a knife—and he can be trained to speak woof-woof for his food. But by golly, you better cut pretty well to get a good, satisfactory one hundred percent of the time woof-woof!

What happens when a man gets "knocked out"? He "isn't there". *But all the memory recordings during the period are.* What happens when you knock him half out? He does strange, automatic things. What happens when his analyzer is so aberrated that . . . hey! Wait! How would you build a good, sensitive analyzer? Would you leave it connected to every shock? Huhuh! You'd fuse it so it would live to think another day. In an emergency what kind of a response do you want. Automatic!

Stove hot, hand on stove, withdraw hand. Do you do a computation on that? No indeed. What withdrew the hand? The analyzer? No. What happened to the analyzer for an instant during the shock? The analyzer goes out of circuit and leaves a mechanical determining director in full charge! A good, fast identity-thinking director.

The analyzer does not think in identities. It thinks in differences, similarities. When it loses its power to differentiate and thinks in identities— No, it never does that. That's madness and the analyzer does *not* go mad. But something around here thinks in identities. Start working on a patient and find out that hash equals snow equals an ache in the knee— That's identity thinking.

We don't know here what really happens to that analyzer. But we do know that we have found something which interposes between the banks and the computer. Something which thinks in identities, has a high priority over reason during moments of stress, can be found whenever a man is sent into some of yesterday's unconscious moments.

We know what it does now. It takes command when the analyzer is out of circuit. Whether or not it is the old style mind which man did not shed while graduating to sentience by developing an analyzer is beside the point. Whether or not it is a structural entity of a combination of "unconscious periods" is equally outside our concern here. We are working in function and we want answers that work every time.

Call this the *reactive mind.* It is a mind which is constructed to work in moments of enormous physical

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pain. It is rugged. It works all the way down to the bottom and within a millimeter of death. Maybe it's almost impossible to build a sharply sentient mind which would operate under the terrible conditions of agony in which we find the reactive mind operating. Maybe the reactive mind . . . well, that's structure. Here it is as function.

The reactive mind thinks in identities. It is a stimulus-response mind. Its actions are exteriorly determined. It has no power of choice. It puts physical pain data forward during moments of physical pain in an effort to save the organism. So long as its mandates and commands are obeyed it withholds the physical pain. As soon as the organism starts to go against its commands, it inflicts the pain.

The fish, had he failed to swim away when in a danger area where he had been attacked would have been forced away by the crude mechanism of pain going into restimulation. No swim equals aching side. Swim equals all right.

The analyzer blows its fuses as any good machine would when its delicate mechanism is about to be destroyed by overload. That's survival. The reactive mind kicks in when the analyzer is out. That's survival.

But something must go wrong. This was a pretty good scheme of things. But it didn't always work.

Or it worked too well.

Thus were discovered the reactive memory bank and its total content, the norns and their locks. A norn—Norse: a hidden witch which guides man's fate all unknown to him—is simply a period of physical pain when the analyzer is out of circuit and the organism experiences something it conceives to be or which is contrary to its survival. A norn is received only in the absence of the analytical power.

When the analyzer is out of circuit, data of high priority value can pass, without evaluation by the analyzer into the memory bank. There it becomes a part of the emergency bank. This is a red-tab bank, the reactive mind, composed of high priority, dangerous situations which the organism has experienced. The reactive mind has this bank as its sole source of information. The reactive mind thinks in identities with this red-tab bank. So long as the analyzer is *fully* in circuit, the red-tab bank is nul and void. With the analyzer partically out of circuit—as in weariness, drunkenness, or illness—a part of this bank can cut in.

Let's begin to call "unconsciousness" a new word: ANATEN. *An*alytical *atten*uation. There is great or lesser anaten. A man goes under ether. He becomes anaten. He is hit in the jaw and is anaten.

Now what does a norn contain? Clinical examination of this object of interest demonstrates that the norn consists of anaten, time, physical age, emotion, physical pain, and

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every percept in order of sequence. Words, sights, smells, everything that was there.

We had to organize a new subscience here to think about norns properly. It's the science of perceptics. Know your general semantics? Well, same organization only we take in all the perceptics and we show where the meaning of each perceptic originates and why man can't nonidentify with ease and aplomb so long as he has norns.

The automatic writing I was getting was straight out of norns. That and by-pass circuits would disclose data received during anaten—norns. And then I discovered that these norns had a peculiar faculty. They could create their own circuits, parasitically using the host circuits.

Here's how a norn can be established: Mary, age 2, knocked out by dog, dog bites. Content of norn: anaten; age 2 (physical structure); smell of environment and dog; sight of dog jaws gaping and white teeth; organic sensation of pain in back of head (hit pavement); pain in posterior; dog bite in cheek, tactile of dog fur; concrete (elbows on pavement) hot dog breath; emotion; physical pain plus endocrine response; audio: dog growl and passing car.

What Mary does with norn: She does not "remember" the incident but sometimes plays she is a dog jumping on people and biting them. Otherwise no reaction. Then, at age 10, similar circumstances, no great anaten, the norn is restimulated. After this she has headaches when dogs bark or when cars pass that sound like *that* car, but only responds to norn when she is tired or harassed otherwise. The norn was first dormant—data waiting just in case. Next it was keyed-in—stuff we have to watch out for. Then it was thereafter restimulated whenever any combination of its perceptics appeared while Mary was in slight anaten (weary). When forty years of age she responded in exactly the same way, and still has not the slightest conscious understanding of the real reason!

Now let's consider what would have happened if Mary's mama had yelled something really choice, nornally speaking: "Be calm! Be calm! Oh, my darling, it's always this way. Get out, get out!" Something mama had tucked away as the proper thing to do and say, nornally, when dogs bite daughters.

We here have what amounts to a post-hypnotic suggestion: identity (equals) thought. All the perceptics equal all the words equals a dog equals mama equals get out, et cetera, et cetera, et cetera, and each equals all and any part of each. No wonder nobody could compute a madman! This is irrationality de luxe. Literally, this computation of identity thought makes no sense. But it's survival data and it better be obeyed or the cheek will hurt, the head will ache and the elbows will get a permanent "dermatitis".

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But remember that this norn also had, as a tab, anaten, the exact degree of anaten present during that moment. The analyzer is a fine device but it is also, evidently, a physical organ, probably the pre-frontal lobes and organic sensation includes several things. Restimulation brings about this state of affairs: "Analyzer shut off." "Reactive mind to cells. Red-tab dog in sight. Shut off analyzer. This is a priority situation. That is all."

The degree of anaten is very far from the original in the norn. But it is sufficient to produce a reduced state of analyzing, in effect a reduced sanity. The subject just has a feeling of dull, stupid mental confusion many times, a sort of dumb, unreasoned and unidentified emotion that seems to stop thought in numbness. You've had it! Thus we have a situation which begins to approach a pushbutton determinism. The norn which has become keyed-in can, when the individual is slightly anaten —weary, ill, sleepy—be pushbuttoned. Use the key word to the slightly anaten subject which is contained in one of his norns and one of that norn's reactions may be observed. Push the button thoroughly enough and a full dramatization can be effected—he will *re-enact* the original situation!

Thus the red-tab "memory" bank of the reactive mind. The discovery of this bank is one of the several original discoveries of dianetics. Many parts of dianetics can be found, if improperly evaluated, in old philosophic schools or in modern practice, but there remain a few entirely new facets which have no prior art. This red-tab bank is a very special affair and is quite different in composition, content and circuit from the analytical banks—conscious banks containing data which can be "remembered".

The reason this bank was never discovered before is not difficult to find. The red-tab bank content was implanted when the analyzer was out of circuit—unconscious. It is located then many stratas below conscious awareness in the stupefactions of a physical knock-out. When one tried to get to it with hypnotism or narco-synthesis he was confronted with a patient who simply looked knocked-out, who was unresponsive to everything. As narco-synthesis and hypnotism both savor of sleep, the deeper sleep of the composite whole of all the past knock-outs of a lifetime render the patient entirely insensible even when one was squarely on top of the reactive bank. So this bank remained hidden and unknown. And that is a sad thing because unless one knows about this bank the entire problem of man's imperfection, his insanity, his wars, his unhappiness, can go begging or get into the files of a shaman or a neuro-surgeon. Much more widely, the hidden character of this bank can be said to be responsible for irrational conduct on the part of all man-

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kind. And how many lives has that cost in the last four thousand years?

It is a very peculiar sort of a bank. It is the *only* bank in the human mind from which any content can be exhausted. All its content is pain and unconsciousness. And only physical pain can be deleted from the mind. Now wouldn't you say that this was a peculiar sort of a bank? Here it is with its bunkers full of high priority but false survival data. Here it is full of experiences which, because of the way they are filed, can drive a man to suicide or other madness. Here it is with its memories all ready to click into the motor controls of the body ready, without so much as a by-your-leave from the sentient analyzer, to make a man run insanely until he drops from heart failure. Here it is able to change the perfect structure of the body into a nightmare thing with a fetuslike face and wasted or undeveloped limbs. Here it is ready to manufacture anything you can name by way of physical ills or at least to predispose them, possibly even cancer. Here it is filling hospitals, mental institutions and jails. And yet it is the one portion of human memory that can be modified and changed!

What price some of the old philosophies when the only reducible "memory" is one of pain?

Try any technique you can name on a pleasant or even a merely passing memory in one of the conscious banks. It will stay right where it is, indelible, particularly the pleasurable

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ones. But a "memory" in the red-tab bank, when properly approached by dianetic technique, will vanish out of that bank entirely. It refiles as a memory in the conscious level banks and as such, by the way, is fantastically difficult to locate—on the order of what you ate for dinner on June 2nd when you were two years of age—and when found bears the tag "found to be nonsurvival data, do not permit it or similar data into any fundamental computations". And one of these unconscious "memories" when treated, produces about the same emotional response afterwards as a mildly amusing joke.

The red-tab bank could cause circuits to be set up which looked and sounded like demons. It could occlude the conscious bank in part or so thoroughly that it appeared that there was no past. It could command and order a person about like a moron might control a robot. And yet it is perishable. And it can be de-intensified and refiled, with consequent great increase in the survival chances of a man. All its content is contra-survival. When it is gone, survival is demonstrably enhanced—and that means what it says and the fact can be proven in a clinical laboratory with an experiment on the order of "is this water?"

Pleasure memories can be attacked with various techniques. But they are set. They won't budge. Refile the reactive memories and the whole conscious lifetime of the individual springs into view, brilliant and clear, unmodified by the by-pass circuits which are madness. Reduce the reactive bank and the optimum mind for the individual comes into view. The reactive bank was neither the drive nor the personality of the individual—these are indelible and inherent.

And another thing happens. The by-pass circuits and the reactive bank apparently stand only between the conscious banks and the analyzer. They do not stand between, for instance, the ear and the sonic file in the conscious bank, the eye and the visio file, et cetera. This is a very important discovery in its own right, for it means that an aberration, for instance, about the inability to hear did not prevent all proper sounds from being filed, about the inability to see color did not prevent all color from being filed. Clear away the reactive circuit which apparently prevented the observations and the analyzer finds itself possessed of whole banks of material it never knew it had, all in proper sound and color *et al.*

For instance a man who supposes that the whole world was ugly and sordid is guided through therapy. The aberration which made the world seem ugly and sordid folds up when the norn or norns to that effect de-intensify and refile. The by-pass circuit these norns caused to be set up did *not* prevent a full, true recording to be made via all sensory channels. Therefore, when the ana-

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lyzer is permitted to enter the files, the individual discovers that he has innumerable pleasurable experiences which, when they occurred, appeared to him to be ugly and sordid but which are now bright.

This postulates another circumstance, interesting but not vital to dianetics. The standard memory banks of the mind are evidently not filled with memories which are entities capable of willy-nilly determinism on the individual. They are not automatically restimulated by the perception of something which suggests them in the environment. They are not hooked into circuit on a permanent basis at all. They are filed with conclusions and the analyzer may pick up the old conclusions or create new ones which change the old. In other words, *the standard bank is at the command of the analyzer and the individual; the individual is not at the command of the standard banks.*

In short there is no such thing as conditioning. Conditioning is all right for rats and dogs and cats. They run on the reactive type bank. Therefore what we refer to, ordinarily, as conditioning, is actually a norn command laid down in a specific moment. This is easily susceptible of clinical proof. The conditioning of a lifetime on the subject, say, of eating with a knife, breaks down the instant that the norn command demanding it is de-intensified.

This is not theory, but actuality: conditioning in the absence of norns on the subject does not and cannot exist. Conditioning can be removed and will stay removed. There are then two things at work: The reactive mind commands certain actions and these can be altered by the de-intensification of norns. The analyzer can hook up and arrange certain automatic responses for various mechanical situations and actions. Call the reactive mind demand a habit, call the analytical requirement a training pattern. There are habits: these can be removed. There are training patterns: these can be altered only with the consent of the analyzer, which is to say, the individual. Practically all the survival patterns which really lead to survival are laid down on the analytical level. The reactions in which people indulge which are contra-survival are laid down on the reactive level.

Conditioning, therefore, is another term which can be laid aside. The analyzer, working without impedence by norns, can lay down or take up training patterns at will. The reactive mind can lay down commands which make habits only when the exterior world implants such commands in the absence of full analytical power. Dianetics can break up habits, simply by relieving the norns which command them. Dianetics could only change a training pattern if the individual consented to it.

These discoveries were an additional proof that man was a self-determined individual. Further in-

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vestigation led to another finding: that although the reactive bank was exterior determinism this determinism was a variable on the individual. In other words, the determinism laid in by pain had a variable effect. The same norn introduced into three different people might bring about three different reactions. Man is so thoroughly a self-determined organism that he has a variable reaction to all attempted determinisms. Research brought about the fact that he could exercise a power of choice over the reactive bank, even if in a limited manner. He had five ways to handle a norn: he could attack it and its counterpart in the exterior world, he could flee from it and its counterpart, he could avoid it and its counterpart, he could neglect it and its counterparts, or he could succumb to it. He was self-determined to some degree within this group of reactions. And these are the reactions to any dangerous, contra-survival problem.

These are, by the way, known as the "black panther mechanisms" in dianetic parlance. Imagine that a black panther is sitting on the stairs. There are five ways of handling the situation for a man sitting in the living room and who has a desire to go upstairs. He could attack the panther, he could flee from it, he could avoid it by going outside and coming up via the porch lattice—or entice the panther away as another method of avoidance—he could simply refuse to admit it was a black panther and attempt to go up anyway, or he could simply lie still in fear paralysis and hope that the black panther would either eat him quietly without too much pain or merely walk off in antipathy to corpses. (Fear-paralysis, denial of dangerousness.)

Now an analyzer does not handle conscious level — standard bank — memories in this fashion. The analyzer evaluates the present and future in terms of experience and education of the past plus imagination. The standard bank is used for computation, not for emotional reaction, guilt, self-revilement, et cetera. The only valid data is that data in the standard bank and in its search for success, happiness, pleasure or whatever desirable end or merely in the art of contemplation, the analyzer must have reliable information and observation. It uses memory, conclusions drawn from experience and conclusions drawn from its conclusions and computes in various ways to obtain correct answers. It avoids a false datum as a curse once it knows it is false. And it is constantly re-evaluating the memory files to reform conclusions. The more experience it has, the better its answers. Bad experience is fine data for computation because it brings in the necessity level. But the analyzer *cannot* compute reactive data, the "unconscious memories" it cannot reach and does not even know about.

So these reactive "memories" aren't memories at all as we understand *memory*. They are something

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else. They were never meant to be recalled on the analytical level or to be analyzed in any way. The analyzer, trying to get around that red-tab bank sets up some circuits which would tax a Goldberg to duplicate. The analyzer is trying to reach its proper conscious level banks. If it can't, it can't compute right answers. If the analyzer keeps getting strange and seemingly sourceless material which nevertheless has pain to enforce its acceptance, that analyzer can get very wrong answers. And the structural body can go wrong. And motives go wrong. And somebody invents phrases like "it's human to err".

No, reactive "memories" aren't memories. Let's call them a good medical term, *engrams*—a lasting trace—and modify the definition by qualifying "lasting". They were certainly lasting enough pre-dianetics.

The engram is received, we can postulate, on a cellular level. The engram is cellular memory by the cells and stored in the cells. We won't go further with this because at present we want to stay out of the problems of structure. But we can prove to anyone's satisfaction that the reactive mind bank is apparently inside the cells themselves, and is not part of the human mind banks which are composited of, we suppose, nerve cells. Engrams are in any kind of cell in the whole aggregation. They do not in the least depend upon nervous structure to exist. They use and prey upon nervous structure as we know it. So we are not talking about memory when we talk about engrams. We are talking about cellular recordings on the order of phonograph records, smell records, organic sensation records, all very precise. And when we say reactive mind we are talking about no special part of the body but a composite, cellular level moronic method of remembering and computing. Someday somebody may cut off a chunk of brain and cry "Eureka, this is the reactive mind." Possibly. But staying with our functional computation, we can make good time and get workable results. And so we need to know no seat for the reactive mind. And we need to know nothing about the exact structure of its banks. All we want to know is what they do.

The reactive engram comes in with pain when the analytical mind is more or less out of circuit. The engram is *not* recorded in the conscious level banks. It comes in on a cellular level, just as though the cells which compose the body, suddenly recognizing that the organism is in apparent danger of perishing, grab data in an effort to save themselves the order of a disintegrated, every man for himself effort. But the data they get is not disordered. It is most terribly precise, most alarmingly literal. It is exact. "Bean" means "bean" in all the ways the sound of "bean" can mean "bean".

Once received, this engram can

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then lie dormant, inactive. It takes a remotely similar, conscious level experience to stir that engram up. This key-in moment evidently refiles the engram within the red-tab banks and gives it articulation. The words of the engram get meaning. The perceptions get hooked into the sensory organs. The engram is now in place. After this it can be very easily restimulated. The cells are now capable of back-seat driving.

By engram we mean, solely, the actual impression—like the wax indentions on a record—of the "unconscious" experience upon the body. The engram as an entire experience, we call a *norn*.

Well, these are the discoveries. Once they had been made, it was necessary to find out how they could be applied.

Man, we have postulated—and it is certainly working—is obeying the basic command, SURVIVE! This is a dynamic command. It demands action. In looking over the matter of obedience to this command numerous computations were necessary. Survive. Well, the first answer and the too obvious one is that man is surviving as a unit organism. A very thorough computation on this—about two hundred thousand words—revealed the fact that while everything in the Universe could be explained—by a few shifty turns of logic—in terms of personal survival, the thing was unwieldy and unworkable. We want things to be workable. This is engineering, not idle study. We have a definite goal. So let us see if man is all out for man.

The whole reason for the organism's survival *can* be computed down into this single effort, the survival of contemporary mankind. All the reason a unit organism survives is to let all mankind survive. But that does not work well.

Now let us take a group, under which we put symbiotes. Let us postulate that the unit organism survives wholly for the group. Again, a computation can be made that explains everything down to group. Group is the only reason, says this computation. It's unwieldy but there's nothing wrong with it.

All right, let's try bringing it all down to sex. And still it can be computed perfectly, if it is a trifle unwieldy. The reason man as a unit survives is to enjoy sex and create posterity. But it requires an enormous number of heavy, cumbersome manipulations of logic that no one would like.

Investigating in the mind—going to the object one is studying and really examining it instead of windily arguing about it and quoting authority—it was discovered that an apparent balance existed only when and if *all four drives* were relatively in force. Each one computed well enough, but taken as the four-fold goal, they balance. The computing becomes very simple. Behavior begins to look good. Using all four, we can predict.

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Now comes the proof. Can we use it? Does it work? It does. Impediments lie across these drives. They have their own energy, these impediments, a reverse polarity surcharge which inhibits the drive on which they lie. This is very schematic but it computes and we can use it in therapy. An unconscious period containing physical pain and conceived or actual antagonism to survival thwarts or blocs or impedes the flow of drive force. Begin to stack up these impedences on a drive and it begins to damp markedly.

Now comes arithmetic. There's a good reason to use the figure four. There are four drives. There are four levels of physical tone. If a man's composite drive force is considered as four and his restimulated —acute or chronic, either way—reactive mind force is high enough to reduce that composite drive force below two, *the individual is insane.* In view of the fact that a norn can be currently restimulated to reduce that force below two, a condition of temporary insanity results.

A norn can consist of father beating mother during a child's anaten. When this norn is highly restimulated, the child, now an adult, may possibly dramatize it either as the father or the mother and will carry out the full drama, *word for word, blow for blow.*

In view of the fact that when father beat mother, father was probably dramatizing one of his own norns, another factor can be found here which is highly interesting. It is contagion. *Norns are contagious.* Papa has a norn. He beats mother into anaten. She now has a norn word for word from him. The child was anaten, maybe booted aside and knocked out. The child is part of mother's perceptics for that norn. Mother dramatizes the norn on the child. The child has the norn. He dramatizes it on another child. When adulthood is attained, the norn is dramatized over and over. Contagion.

Why do societies degenerate? A race comes to a new place. New life, few restimulators—a restimulator being the environment's equivalent to the norn's perceptic content —and high necessity level which means high drive. The race thrives on the new frontier. And then begins this contagion, already present, brought in part from the old environment. And the descending spiral can be observed.

Having a norn makes one slightly anaten. Being slightly anaten one more easily receives new norns. Norns carry physical pain—psychosomatics—which reduces the general tone and bring on further anaten. And in a rapidly descending spiral, the individual decays.

These were the computations achieved by research and investigation. Now it came to making them work. If they didn't work, we'd have to change things and get new principles. It happens that the above works.

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But to start them working was a difficult thing. There was no way of knowing how many norns a patient might have. One could be cheerfully optimistic by this time. After all, there was a pretty good computation, some knowledge of the nature of the black enchantment, and it might be possible to bring about a "clear"—optimum working condition of the analyzer—in almost any patient. But the road was full of stones.

Several techniques were developed all of which brought alleviation approximating a couple thousand hours of psycho-analysis. But that wasn't good enough. They could bring about better results than hypno-analysis and bring them about much more easily. But that wasn't getting the train over the stream.

I found out about locks. A lock is a situation of mental anguish. It depends for its force on the norn to which it is appended. The lock is more or less known to the analyzer. It's a moment of severe restimulation of a norn. Psychoanalysis might be called a study of the locks. I discovered that any patient I had had thousands upon thousands of locks, enough to keep me busy forever. Removal of locks alleviates. It even knocks down chronic psychosomatic ills—at times. It produces more result than anything else so far known elsewhere, but it doesn't *cure*. Removal of locks does not give the individual all his mental powers back, his audio-tone, visio color, smell, taste organic memory and imagination. And it doesn't particularly increase his I.Q. I knew that I was far from the optimum analyzer.

It was necessary to go back and back in the lives of patients looking for real norns, total anaten. Many were found. Some were found that would release when the patient was removed in time back to them and was made to go over and over them, perceptic by perceptic. But there were also norns that would not release, and they should have, if the original computation was correct. The optimum computer must analyze the data on which it operates, and, once false data have been called to its attention for questioning, the self-checking feature of the computer should automatically reject that falsity.

The fact that a norn wouldn't release worried me; either the basic idea that the brain was a perfect computer was wrong, or—hm-m-m. Before too long it was found that one had to have the first nornic instant of each perceptic before the later norn would go. That looked like order. Get the earliest pain associated with, for instance, a squeaking street car wheel and later street car wheels, even in bad norns, gave no trouble. The perfect computer wouldn't overcome the short circuit at level 256 if the same circuit was shorted at level 21, but clear the short circuit—the false data—where it first appeared, and then the com-

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puter could readily find and correct the later errors.

Then began the most persistent search possible to find the earliest norn in any patient. This was mad work. Utterly weird.

One day I found myself with a complete birth engram on my hands. At first I did not know what it was. Then there was the doctor's patter. There was the headache, the eye-drops— Hello! People can remember birth when they're properly bucked into it! Aha! Birth's the earliest norn. Everybody has a birth. We'll all be clears!

Ah, if it had been true! Everybody has a birth. And believe me, birth is quite an experience, very nornic, very aberrative. Causes asthma and eyestrain and somatics galore. Birth is no picnic and the child is sometimes furious, sometimes apathetic but definitely recording, definitely a human being with a good idea of what's happening when he isn't anaten. And when the norn rises, he knows analytically all about it. (And he can dramatize it, if he's a doctor or she can dramatize it if she's a mother. Wow, lots of dope here. Hot dope.) But birth isn't all the answer. Because people didn't become clears and stop stuttering and stop having ulcers and stop being aberrated and stop having demon circuits when birth was lifted. And sometimes birth didn't lift.

The last was enough for me. There was an axiom: find the earliest norn. Know where it wound up? *Twenty-four hours after conception!* Not all cases, fortunately. Some cases waited four days after conception before they got their first norn. The embryo anatens easily; evidently *there's cellular anaten!*

No statement as drastic as this—as far beyond previous experience as this—can be accepted readily. I have no explanation of the structure involved; for the engineering answer of function, however, structural explanation is not immediately necessary. I was after one and only one thing; a technical process whereby aberrations could be eliminated, and the full potentiality of the computational ability of the mind restored. If that process involved accepting provisionally that human cells achieve awareness on the order of cellular engrams as little as a day or two after conception, then for the purposes at hand that proposition can, and must be, accepted. If it had been necessary to go back through two thousand years of genetic memory, I would still be going back to find that first norn—but fortunately there's no genetic memory, as such. But there definitely is something which the individual's mind regards as prenatal norns. Their objective reality can be debated by anyone who chooses to do so; their subjective reality is beyond debate—so much so that the process works when, only when, and *invariably when* we accept the reality of those prenatal memories. We are seeking a process that cures aberra-

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tions, not an explanation of the Universe, the function of life, or anything else. Therefore we accept as a working—because it works—postulate that *prenatal engrams are recorded as early as twenty-four hours after conception.* The objective reality has been checked so far as time and limited means permitted. And the objective reality of prenatal norns is evidently quite valid. Any psychologist can check this if he knows dianetic technique and can find some twins separated at birth. But even if he found discrepancies the bald fact remains that individuals *cannot* be rehabilitated unless the prenatal engrams are accepted.

What happens to a child in a womb? The commonest events are accidents, illnesses—and *attempted abortions!*

Call the last an AA. Where do people get ulcers? In the womb usually, AA. Full registry of all perceptics down to the last syllable, material which can be fully dramatized. The largest part of the proof is that lifting the engram of such an event *cures the ulcer!*

How does the fetus heal up with all this damage? Ask a doctor about twenty years hence—I've got my hands full. That's structure, and right now all I want is a clear.

What's that chronic cough? That's mama's cough which compressed the baby into anaten when he was five days after conception. She said it hurt and happened all the time. So it did. What's arthritis? Fetal damage or embryo damage.

It so happens, it is now known, that a clear can control all his body fluids. In an aberee the reactive mind does a job of that. The reactive mind says things have to be such and so and that's survival. So a man grows a withered arm. That's survival. Or he has inability to see, hysterical or actual blindness. That's survival. Sure it is. Good solid sense. Had a norn about it, didn't he?

What's TB? Predisposition of the respiratory sytsem to infection. What's this, what's that. You've got the proposition now. It works. The psychosomatic ills, the arthritis, the impotence, this and that, they go away when the norns are cleared from the bottom.

That was the essence of the derivation of the technical process. With the research stage completed, the actual application was the remaining stage, and the gathering of data on the final, all-important question. The process worked—definitely and unequivocably worked. But the full definition of a science requires that it permit accurate description of how to produce a desired result *invariably.* Would the technique work on all types of minds, on every case?

To date, over two hundred patients have been treated; of those two hundred people, two hundred cures have been obtained. Dianetics is a science because by following readily prescribed techniques, which

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can be specifically stated, based on definitely stated basic postulates, a specifically described result can be obtained in every case. There may, conceivably, be exceptions to the technique now worked out, but I tried honestly to find exceptions and did not; that's why I tried so many cases, of so many different types. And some of them were really gruesome cases.

Who is an aberee? Anybody who has one or more norns. And since birth itself is a nornic experience—every human being born has at least one norn!

The whole world, according to the hypnotist, needs nothing but to be hypnotized. Just put another norn, an artificial one into a man, even if its a manic norn—makes the subject "big" or "strong" or "powerful" plus all other perceptics contained—and he's all right. That's the basic trouble. Reduction of self-determinism. So we don't use hypnotism. Besides, it's not workable on any high percentage. If you've followed this far without realizing that we are trying to wake up an analyzer, you made the same mistake I did for many months. I tried to work this stuff with hypnosis. Well, it works, after a sloppy fashion. But how you put a man to sleep who is already three-quarters asleep—normal, near as I can discover—is a problem I wish could be solved. But fortunately it doesn't need solution.

The analyzer went to sleep with each norn. Each norn had lock norns—like it, also norns, but subsequent to it—and each chain of norns —same species, people have about fifteen or twenty chains on the average of ten or fifteen norns to the chain—has about a thousand locks. There are luckless people who have hundreds of norns. They may be sane. There are people who have twenty norns and are insane. There are people who are sane for years and suddenly get into just the right environment and get restimulated and go mad. And anybody who has a norn he has had fully restimulated has been mad—vox populi—for at least once, even if only for ten minutes.

When we start to treat a patient, we are treating a partially asleep analyzer—and the problem is to wake him up in the first norn and then erase—that's right *erase,* they vanish out of the reactive bank on recounting over and over with each perceptic—all subsequent norns. The locks blow out without being touched, the Doctrine of the True Datum working full blast and the analyzer refusing to tolerate what it suddenly notices to be nonsense. We wake the patient up with drugs. Benzadrine, caffeine. Better ones will be invented. And as he recovers mental function enough to reach back a little ways into his past, we begin to alleviate. Then we finally find out the reactive mind plot—why he had to keep on being aberrated—and we blow out the demons—upsetting the circuits—and all of a sudden we are

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at basic basic, first norn. Then we come forward, recounting each norn over and over until it blows away and refiles as experience as opposed to command.

A clear has regression recall. Basic personality, in an aberee, isn't strong enough to go back so we use what we call the *Dianetic reverie.*

We found why narco-synthesis is so sloppy. It puts the partially restimulated norn into full restimulation, keys all of it in. The drug turns off the somatic—physical pain—so that it doesn't wholly go away. And narco has no chance of going back far enough to get basic basic and the one it reaches will pretend to erase and then will surge back in from sixty hours to sixty days.

Does any special thing hold up a case? Yes, the sympathy computation. Patient had a tough nornic background, then broke his leg and got sympathy. Thereafter he tends to go around with a simulated broken leg—arthritis, et cetera, et cetera. These are hard to crack sometimes, but they should be cracked first. They make a patient "want to be sick". Sickness has a high survival value says the reactive mind. So it tailors up a body to be sick, good and sick. Allies are usually grandmothers who protested against the child being aborted—effort already made, child listening in, not knowing the words just then but he'll know them later when he knows his first words—nurses who were very kind; doctors who bawled mama out, et cetera, et cetera. Patient usually has an enormous despair charge around the loss of an ally. That'll hold up a case.

We've completely by-passed how this ties in with modern psychology. After all, modern psychology has labels for many observed conditions. How about schizophrenia, for instance?

That's valence. An aberee has a valence for every person in every norn. He has basically three, himself, mother and father. Every norn has dramatic personnel. A valence builds up in the reactive mind and walls off a compartment, absorbing some of the analyzer—which is shut down by restimulation. Multi-valence is common to every aberee. The valence of every aberee gets shifted day to day depending upon whom he meets. He tries to occupy the top-dog valence in every nornic dramatization. Taking this is the highest survival computation that can be made by the reactive mind; always win. Break a dramatization and you break the patient into another valence. If you break him down to being himself in that norn he will probably anaten or get sick. Keep breaking his dramatizations and he is disabled mentally.

Who will practice Dianetics? In severe cases, doctors. They are well schooled in the art of healing, they are always being bombarded by psychosomatics and mental situa-

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tions. The doctor has, like the engineer, a certain necessity for results. There are several methods of alleviation which will work in a few hours, break up a chronic illness in a child, change valences, change a person's position on the time track—people get caught in various places where the command says to be caught—alter dramatization pattern and generally handle the sick aberee.

In the general case, however—the psychotic, neurotic, or merely suboptimum individual—dianetics will probably be practiced by people of intelligence and good drive on their friends and families. Knowing all the axioms and mechanisms, dianetics is easy to apply to the fairly normal individual and can relieve his occulusions and colds and arthritis and other psychosomatic ills. It can be used as well to prevent aberrations from occurring and can even be applied to determine the reactions of others. Although the fundamentals and mechanisms are simple and, with some study, very easily applied, partial information is dangerous, the technique may be the stuff of which sanity is made but one is after all engaging action with the very stuff which creates madness and he should at least inform himself with a few hours study before he experiments.

I have discussed here the evolution of Dianetics. Actually I have concentrated upon Abnormal Dianetics. There are Medical Dianetics, Dynamic Dianetics—drives and structure—Political Dianetics, Military Dianetics, Industrial Dianetics, et cetera, et cetera, and not the least, PREVENTIVE DIANETICS. On that may hang the final answer to society.

And now as an epilogue, Dianetics is summarized in its current workable form. It does the following things, based on an ample series of cases:

1. Dianetics is an organized science of thought built on definite axioms; it apparently reveals the existence of natural laws by which behavior can uniformly be caused or predicted in the unit organism or society.

2. Dianetics offers a therapeutic technique with which we can treat any and all inorganic mental and organic psychosomatic ills, with assurance of complete cure in unselected cases. It produces a mental stability in the "cleared" patient which is far susperior to the current norm. (This statement is accurate to date; it is conceded that further work may demonstrate some particular case somewhere which may not entirely respond.)

3. In Dianetics we have a method of time dislocation dissimilar to narco-synthesis or hypnosis which is called the Dianetic reverie; with it the patient is able to reach events hitherto hidden from him, erasing the physical and mental pain from his life.

4. Dianetics gives us an insight into the potential capabilities of the mind.

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5. Dianetics reveals the basic nature of man and his purposes and intents, with the discovery that these are basically constructive and not evil.

6. Dianetics gives us an appreciation of the magnitude of events necessary to aberrate an individual.

7. With Dianetics we discover the nature of prenatal experience and its precise effect upon the postnatal individual.

8. Dianetics discovered the actual aberrative factors of birth.

9. Dianetics elucidates the entire problem of "unconsciousness" and demonstrates conclusively that "total unconsciousness" does not exist short of death.

10. Dianetics shows that all memories of all kinds are recorded fully and retained.

11. Dianetics demonstrates that aberrative memories lie only in areas of "unconsciousness" and, conversely that only "unconscious" memories are capable of aberrating.

12. Dianetics opens broad avenues for research and poses numerous problems for solution. One new field, for instance, is the sub-science of perceptics—the structure and function of perceiving and identifying stimuli.

13. Dianetics sets forth the non-germ theory of disease, embracing, it has been estimated by competent physicians, the cure of some seventy percent of man's pathology.

14. Dianetics offers hope that the destruction of the function of the brain, by shock or surgery, will no longer be a necessary evil.

15. Dianetics offers a workable explanation of the various physiological effects of drugs and endocrine substances and points out numerous answers to former endocrine problems.

16. Dianetics gives a more fundamental explanation of the uses, principles and fundamentals of hypnotism and similar mental phenomena.

17. To sum up, Dianetics proposes and experimentally supports a new viewpoint on Man and his behavior. It carries with it the necessity of a new sort of mental hygiene. It indicates a new method of approach to the solution of the problems which confront governments, social agencies, industries, and, in short, man's sphere of endeavor. It suggests new fields of research. Finally it offers a glimmer of hope that Man may continue his process of evolution toward a higher organism without straying toward the danger point of his own destruction.

This is part of the story of the search. I wrote it for you this way because you have minds with which to think. For strictly professional publications, I can, will and have dressed this up so it is almost impossible to understand, it's so exact. A lot of you have been reading my

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stories for years. We know each other. And I have told you the story as is and I have given you the major results exactly as they turned out. A lot of you are fellow engineers. I thought you'd enjoy seeing the structure built.

I am truly sorry, Eric Frank Russell, that the black enchantment of Earth didn't turn out to be a sinister barrier for your sake. But it's a black enchantment all the same. The social and personal aberrations, traveling from Egpyt's time and before, piling up higher and higher, being broken only by new lands and new mongrel races.

The black enchantment is slavery. Man's effort to enslave man so that man can be free. Wrong equation. That's the black enchantment. We've a magic word to break it and a science to be applied. Up there are the stars. Down in the arsenal is an atom bomb. Which one is it going to be?

THE END

THE ANALYTICAL LABORATORY

To begin with, the February issue contained seven stories and the article, somewhat more stories than usual. The result is that scoring votes ran numerical values from one to seven, and gave higher point scores. And to continue with, let it be pointed out that the authors represented are all unusually strong writers. Competition for places was, naturally, hot. The scores follow:

Place	Story	Author	Points
1.	To The Stars (Pt. I)	L. Ron Hubbard	2.1
2.	The Sound	A. E. van Vogt	2.73
3.	And Be Merry . . .	Katherine MacLean	3.23
4.	Promised Land	Lawrence O'Donnell	4.2
5.	Number Nine	Cleve Cartmill	4.58

In connection with the An Lab reports, I'd like to point out that this present issue is decidedly unusual. We don't ordinarily run our fact articles to sixteen thousand words; this time because of the importance of Hubbard's piece we have. Quite naturally, the usual reports I receive for An Lab markings do not score the article—that's reasonable, since a fact article cannot be rated with fiction directly. It's difficult to decide whether one prefers a good apple to a fairly good lamb chop, also. But I'd like some of you to express opinions on articles—not just this current one on dianetics, but all our articles. Our statisticians tell me there are some one hundred fifty thousand people reading this magazine regularly; believe me, I find telepathy a very inadequate method of finding out what you do and do not prefer. A few of you have contacted me by radio, telephone and letter; that gives me much more solid data for building an idea of what you want. I appreciate that help!

THE EDITOR.

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THE POTTERS OF FIRSK

BY JACK VANCE

Uranium *is an interesting material indeed. And Uranium-235 can be used to settle a cultural dispute permanently—if it is used sensibly. This time it was.*

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The yellow bowl on Thomm's desk stood about a foot high, flaring out from a width of eight inches at the base to a foot across the rim. The profile showed a simple curve, clean and sharp, with a full sense of completion; the body was thin without fragility; the whole piece gave an impression of ringing well-arched strength.

The craftsmanship of the body was matched by the beauty of the glaze—a glorious transparent yellow, luminescent like a hot summer afterglow. It was the essence of marigolds, a watery wavering saffron, a yellow as of transparent gold, a yellow glass that seemed to fabricate curtains of light within itself and fling them off, a yellow brilliant but mild, tart as lemon, sweet as quince jelly, soothing as sunlight.

Keselsky had been furtively eying the bowl during his interview with Thomm, personnel chief for the Department of Planetary Affairs. Now, with the interview over, he could not help but bend forward to examine the bowl more closely. He said with obvious sincerity: "This is the most beautiful piece I've ever seen."

Thomm, a man of early middle-age with a brisk gray mustache, a sharp but tolerant eye, leaned back in his chair. "It's a souvenir. Souvenir's as good a name for it as anything else. I got it many years ago, when I was your age." He glanced at his desk clock. "Lunch-time."

Keselsky looked up, hastily reached for his brief case. "Excuse me, I had no idea—"

Thomm raised his hand. "Not so fast. I'd like you to have lunch with me."

Keselsky muttered embarrassed excuses, but Thomm insisted.

"Sit down, by all means." A menu appeared on the screen. "Now—look that over."

Without further urging Keselsky made a selection, and Thomm spoke into the mesh. The wall opened, a table slid out with their lunch.

Even while eating Keselsky fondled the bowl with his eyes. Over coffee, Thomm handed it across the table. Keselsky hefted it, stroked the surface, looked deep into the glaze.

"Where on earth did you find such a marvelous piece?" He examined the bottom, frowned at the marks scratched in the clay.

"Not on Earth," said Thomm. "On the planet Firsk." He sat back. "There's a story connected with that bowl." He paused inquiringly.

Keselsky hurriedly swore that *nothing could please him more than* to listen while Thomm spoke of all things under the sun. Thomm smiled faintly. After all, this was Keselsky's first job.

"As I've mentioned, I was about your age," said Thomm. "Perhaps a year or two older, but then I'd been out on the Channel Planet for nineteen months. When my transfer to Firsk came I was naturally very pleased, because Channel, as perhaps you know, is a bleak planet,

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full of ice and frost-fleas and the dullest aborigines in space—"

Thomm was entranced with Firsk. It was everything the Channel Planet had not been: warm, fragrant, the home of the Mi-Tuun, a graceful people of a rich, quaint and ancient culture. Firsk was by no means a large planet, though its gravity approached that of Earth. The land surface was small—a single equatorial continent in the shape of a dumbbell.

The Planetary Affairs Bureau was located at Penolpan, a few miles in from the South Sea, a city of fable and charm. The tinkle of music was always to be heard somewhere in the distance; the air was mellow with incense and a thousand flower scents. The low houses of reed, parchment and dark wood were arranged negligently, three-quarters hidden under the foliage of trees and vines. Canals of green water laced the city, arched over by wooden bridges trailing ivy and orange flowers, and here swam boats each decorated in an intricate many-colored pattern.

The inhabitants of Penolpan, the amber-skinned Mi-Tuun, were a mild people devoted to the pleasures of life, sensuous without excess, relaxed and gay, guiding their lives by ritual. They fished in the South Sea, cultivated cereals and fruit, manufactured articles of wood, resin and paper. Metal was scarce on Firsk, and was replaced in many instances by tools and utensils of earthenware, fabricated so cleverly that the lack was never felt.

Thomm found his work at the Penolpan Bureau pleasant in the extreme, marred only by the personality of his superior. This was George Covill, a short ruddy man with prominent blue eyes, heavy wrinkled eyelids, sparse sandy hair. He had a habit, when he was displeased—which was often—of cocking his head sidewise and staring for a brittle five seconds. Then, if the offense was great, he exploded in wrath; if not, he stalked away.

On Penolpan Covill's duties were more of a technical than sociological nature, and even so, in line with the Bureau's policy of leaving well-balanced cultures undisturbed, there was little to occupy him. He imported silica yarn to replace the root fiber from which the Mi-Tuun wove their nets; he built a small cracking plant and converted the fish oil they burned in their lamps into a lighter cleaner fluid. The varnished paper of Penolpan's houses had a tendency to absorb moisture and split after a few months of service. Covill brought in a plastic varnish which protected them indefinitely. Aside from these minor innovations Covill did little. The Bureau's policy was to improve the native standard of living within the framework of its own culture, introducing Earth methods, ideas, philosophy very gradually and only when the natives themselves felt the need.

Before long, however, Thomm came to feel that Covill paid only

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lip-service to the Bureau philosophy. Some of his actions seemed dense and arbitrary to the well-indoctrinated Thomm. He built an Earth-style office on Penolpan's main canal, and the concrete and glass made an inexcusable jar against Penolpan's mellow ivories and browns. He kept strict office hours and on a dozen occasions a delegation of Mi-Tuun, arriving in ceremonial regalia, had to be turned away with stammered excuses by Thomm, when in truth Covill, disliking the crispness of his linen suit, had stripped to the waist and was slumped in a wicker chair with a cigar, a quart of beer, watching girl-shows on his telescreen.

Thomm was assigned to Pest Control, a duty Covill considered beneath his dignity. On one of his rounds Thomm first heard mentioned the Potters of Firsk.

Laden with insect spray, with rat-poison cartridges dangling from his belt, he had wandered into the poorest outskirts of Penolpan, where the trees ended and the dry plain stretched out to the Kukmank Mountains. In this relatively drab location he came upon a long open shed, a pottery bazaar. Shelves and tables held ware of every description, from stoneware crocks for pickling fish to tiny vases thin as paper, lucent as milk. Here were plates large and small, bowls of every size and shape, no two alike, ewers, tureens, demijohns, tankards. One rack held earthenware knives, the clay vitrified till it rang like iron, the cutting edge chipped cleanly, sharper than any razor, from a thick dripping of glaze.

Thomm was astounded by the colors. Rare rich ruby, the green of flowing river water, turquoise ten times deeper than the sky. He saw metallic purples, browns shot with blond light, pinks, violets, grays, dappled russets, blues of copper and cobalt, the odd streaks and flows of rutilated glass. Certain glazes bloomed with crystals like snowflakes, others held floating within them tiny spangles of metal.

Thomm was delighted with his find. Here was beauty of form, of material, of craftsmanship. The sound body, sturdy with natural earthy strength given to wood and clay, the melts of colored glass, the quick restless curves of the vases, the capacity of the bowls, the expanse of the plates—they produced a tremendous enthusiasm in Thomm. And yet—there were puzzling aspects to the bazaar. First—he looked up and down the shelves—something was lacking. In the many-colored display he missed—yellow. There were no yellow glazes of any sort. A cream, a straw, an amber—but no full-bodied glowing yellow.

Perhaps the potters avoided the color through superstition, Thomm speculated, or perhaps because of identification with royalty, like the ancient Chinese of Earth, or perhaps because of association with death or disease— The train of thought led to the second puzzle:

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Who were the potters? There were no kilns in Penolpan to fire ware such as this.

He approached the clerk, a girl just short of maturity, who had been given an exquisite loveliness. She wore the *pareu* of the Mi-Tuun, a flowered sash about the waist, and reed sandals. Her skin glowed like one of the amber glazes at her back; she was slender, quiet, friendly.

"This is all very beautiful," said Thomm. "For instance, what is the price of this?" He touched a tall flagon glazed a light green, streaked and shot with silver threads.

The price she mentioned, in spite of the beauty of the piece, was higher than what he had expected. Observing his surprise, the girl said, "They are our ancestors, and to sell them as cheaply as wood or glass would be irreverent."

Thomm raised his eyebrows, and decided to ignore what he considered a ceremonial personification.

"Where's the pottery made?" he asked. "In Penolpan?"

The girl hesitated and Thomm felt a sudden shade of restraint. She turned her head, looked out toward the Kukmank Range. "Back in the hills are the kilns; out there our ancestors go, and the pots are brought back. Aside from this I know nothing."

Thomm said carefully, "Do you prefer not to talk of it?"

She shrugged. "Indeed, there's no reason why I should. Except that we Mi-Tuun fear the Potters, and the thought of them oppresses us."

"But why is that?"

She grimaced. "No one knows what lies beyond the first hill. Sometimes we see the glow of furnaces, and then sometimes when there are no dead for the Potters they take the living."

Thomm thought that if so, here was a case for the interference of the Bureau, even to the extent of armed force.

"Who are these Potters?"

"There," she said, and pointed. "There is a Potter."

Following her finger, he saw a man riding out along the plain. He was taller, heavier than the Mi-Tuun. Thomm could not see him distinctly, wrapped as he was in a long gray burnoose, but he appeared to have a pale skin and reddish-brown hair. He noted the bulging panniers on the pack-beast. "What's he taking with him now?"

"Fish, paper, cloth, oil—goods he traded his pottery for."

Thomm picked up his pest-killing equipment. "I think I'll visit the Potters one of these days."

"No—" said the girl.

"Why not?"

"It's very dangerous. They're fierce, secretive—"

Thomm smiled. "I'll be careful."

Back at the Bureau he found Covill stretched out on a wicker chaise longue, half-asleep. At the sight of Thomm he roused himself, sat up.

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"Where the devil have you been? I told you to get the estimates on that power plant ready today."

"I put them on your desk," replied Thomm politely. "If you've been out front at all, you couldn't have missed them."

Covill eyed him belligerently, but for once found himself at a loss for words. He subsided in his chair with a grunt. As a general rule Thomm paid little heed to Covill's sharpness, recognizing it as resentment against the main office. Covill felt his abilities deserved greater scope, a more important post.

Thomm sat down, helped himself to a glass of Covill's beer. "Do you know anything about the potteries back in the mountains?"

Covill grunted: "A tribe of bandits, something of the sort." He hunched forward, reached for the beer.

"I looked into the pottery bazaar today," said Thomm. "A clerk called the pots 'ancestors'. Seemed rather strange."

"The longer you knock around the planets," Covill stated, "the stranger the things you see. Nothing could surprise me any more—except maybe a transfer to the Main Office." He snorted bitterly, gulped at his beer. Refreshed, he went on in a less truculent voice, "I've heard odds and ends about these Potters, nothing definite, and I've never had time to look into 'em. I suppose it's religious ceremonial, rites of death. They take away the dead bodies, bury 'em for a fee or trade goods."

"The clerk said that when they don't get the dead, sometimes they take the living."

"Eh? What's that?" Covill's hard blue eyes stared bright from his red face. Thomm repeated his statement.

Covill scratched his chin, presently hoisted himself to his feet. "Let's fly out, just for the devilment of it, and see what these Potters are up to. Been wanting to go out a long time."

Thomm brought the copter out of the hangar, set down in front of the office, and Covill gingerly climbed in. Covill's sudden energy mystified Thomm, especially since it included a ride in the copter. Covill had an intense dislike of flying, and usually refused to set foot in an aircraft.

The blades sang, grabbed the air, the copter wafted high. Penolpan became a checkerboard of brown roofs and foliage. Thirty miles distant, across a dry sandy plain, rose the Kukmank Range—barren shoulders and thrusts of gray rock. At first sight locating a settlement among the tumble appeared a task of futility.

Covill peering down into the wastes grumbled something to this effect; Thomm, however, pointed toward a column of smoke. "Potters need kilns. Kilns need heat—"

As they approached the smoke, they saw that it issued not from brick stacks but from a fissure at the peak of a conical dome.

"Volcano," said Covill, with an air

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of vindication. "Let's try out there along that ridge—then if there's nothing we'll go back."

Thomm had been peering intently below. "I think we've found them right here. Look close, you can see buildings."

He dropped the copter, and the rows of stone houses became plain.

"Should we land?" Thomm asked dubiously. "They're supposed to be fairly rough."

"Certainly, set down," snapped Covill. "We're official representatives of the System."

The fact might mean little to a tribe of mountaineers, reflected Thomm; nevertheless he let the copter drop onto a stony flat place in the center of the village.

The copter, if it had not alarmed the Potters, at least had made them cautious. For several minutes there was no sign of life. The stone cabins stood bleak and vacant as cairns.

Covill alighted, and Thomm, assuring himself that his gamma-gun was in easy reach, followed. Covill stood by the copter, looking up and down the line of houses. "Cagey set of beggars," he growled. "Well . . . we better stay here till someone makes a move."

To this plan Thomm agreed heartily, so they waited in the shadow of the copter. It was clearly the village of the Potters. Shards lay everywhere—brilliant bits of glazed ware glinting like lost jewels. Down the slope rose a heap of broken bisque, evidently meant for later use, and beyond was a long tile-roofed shed. Thomm sought in vain for a kiln. A fissure into the side of the mountain caught his eye, a fissure with a well-worn path leading into it. An intriguing hypothesis formed in his mind—but now three men had appeared, tall and erect in gray burnooses. The hoods were flung back, and they looked like monks of medieval Earth, except that instead of monkish tonsure, fuzzy red hair rose in a peaked mound above their heads.

The leader approached with a determined step, and Thomm stiffened, prepared for anything. Not so Covill; he appeared contemptuously at ease, a lord among serfs.

Ten feet away the leader halted—a man taller than Thomm with a hook nose, hard intelligent eyes like gray pebbles. He waited an instant but Covill only watched him. At last the Potter spoke in a courteous tone.

"What brings strangers to the village of the Potters?"

"I'm Covill, of the Planetary Affairs Bureau in Penolpan, official representative of the System. This is merely a routine visit, to see how things are going with you."

"We make no complaints," replied the chief.

"I've heard reports of you Potters kidnaping Mi-Tuun," said Covill. "Is there any truth in that?"

"Kidnaping?" mused the chief. "What is that?"

Covill explained. The chief

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rubbed his chin, staring at Covill with eyes black as water.

"There is an ancient agreement," said the chief at last. "The Potters are granted the bodies of the dead; and occasionally when the need is great, we do anticipate nature by a year or two. But what matter? The soul lives forever in the pot it beautifies."

Covill brought out his pipe, and Thomm held his breath. Loading the pipe was sometimes a preliminary to the cold sidelong stares which occasionally ended in an explosion of wrath. For the moment however Covill held himself in check.

"Just what do you do with the corpses?"

The leader raised his eyebrows in surprise. "Is it not obvious? No? But then you are no potter— Our glazes require lead, sand, clay, alkali, spar and lime. All but the lime is at our hand, and this we extract from the bones of the dead."

Covill lit his pipe, puffed. Thomm relaxed. For the moment the danger was past.

"I see," said Covill. "Well, we don't want to interfere in any native customs, rites or practices, so long as the peace isn't disturbed. You'll have to understand there can't be any more kidnaping. The corpses— that's between you and whoever's responsible for the body, but lives are more important than pots. If you need lime, I can get you tons of it. There must be limestone beds somewhere on the planet. One of these days I'll send Thomm out prospecting and you'll have more lime than you'll know what to do with."

The chief shook his head, half amused. "Natural lime is a poor substitute for the fresh live lime of bones. There are certain other salts which act as fluxes, and then, of course, the spirit of the person is in the bones and this passes into the glaze and gives it an inner fire otherwise unobtainable."

Covill puffed, puffed, puffed, watching the chief with his hard blue eyes. "I don't care what you use," he said, "as long as there's no kidnaping, no murder. If you need lime, I'll help you find it; that's what I'm here for, to help you, and raise your standard of living; but I'm also here to protect the Mi-Tuun from raiding. I can do both—one about as good as the other."

The corners of the chief's mouth drew back. Thomm interposed a question before he spat out an angry reply. "Tell me, where are your kilns?"

The chief turned him a cool glance. "Our firing is done by the Great Monthly Burn. We stack our ware in the caves, and then, on the twenty-second day, the scorch rises from below. One entire day the heat roars up white and glowing, and two weeks later the caves have cooled for us to go after our ware."

"That sounds interesting," said Covill. "I'd like to look around your works. Where's your pottery, down there in that shed?"

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The chief moved not a muscle. "No man may look inside that shed," he said slowly, "unless he is a Potter —and then only after he has proved his mastery of the clay."

"How does he go about that?" Covill asked lightly.

"At the age of fourteen he goes forth from his home with a hammer, a mortar, a pound of bone lime. He must mine clay, lead, sand, spar. He must find iron for brown, malachite for green, cobalt earth for blue, and he must grind a glaze in his mortar, shape and decorate a tile, and set it in the Mouth of the Great Burn. If the tile is successful, the body whole, the glaze good, then he is permitted to enter the long pottery and know the secrets of the craft."

Covill pulled the pipe from his mouth, asked quizzically, "And if the tile's no good?"

"We need no poor Potters," said the chief. "We always need bone-lime."

Thomm had been glancing along the shards of colored pottery. "Why don't you use yellow glaze?"

The chief flung out his arms. "Yellow glaze? It is unknown, a secret no Potter has penetrated. Iron gives a dingy tan, silver a gray-yellow, chrome a green-yellow, and antimony burns out in the heat of the Great Burn. The pure rich yellow, the color of the sun . . . ah, that is a dream."

Covill was uninterested. "Well, we'll be flying back, since you don't care to show us around. Remember, if there's any technical help you want, I can get it for you. I might even find how to make you your precious yellow—"

"Impossible," said the chief. "Have not we, the Potters of the Universe, sought for thousands of years?"

". . . But there must be no more taking of lives. If necessary, I'll put a stop to the potting altogether."

The chief's eyes blazed. "Your words are not friendly!"

"If you don't think I can do it, you're mistaken," said Covill. "I'll drop a bomb down the throat of your volcano and cave in the entire mountain. The System protects every man-jack everywhere, and that means protecting the Mi-Tuun from a tribe of Potters who wants their bones."

Thomm plucked him nervously by the sleeve. "Get back in the copter," he whispered. "They're getting ugly. In another minute they'll jump us."

Covill turned his back on the lowering chief, deliberately climbed into the copter. Thomm followed more warily. In his eyes the chief was teetering on the verge of attack, and Thomm had no inclination for fighting.

He flung in the clutch; the blades chewed at the air; the copter rose, leaving a knot of gray-burnoosed Potters silent below.

Covill settled back with an air of satisfaction. "There's only one way to handle people like that, and that is, get the upper hand on 'em; that's

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the only way they'll respect you. You act just a little uncertain, they sense it, sure as fate, and then you're a goner."

Thomm said nothing. Covill's methods might produce immediate results, but in the long run they seemed short-sighted, intolerant, unsympathetic. In Covill's place he would have stressed the Bureau's ability to provide substitutes for the bone-lime, and possibly assist with any technical difficulties—though indeed, they seemed to be masters of their craft, completely sure of their ability. Yellow glaze, of course, still was lacking them. That evening he inserted a strip from the Bureau library into his portable viewer. The subject was pottery, and Thomm absorbed as much of the lore as he was able.

Covill's pet project—a small atomic power plant to electrify Penolpan—kept him busy the next few days, even though he worked reluctantly. Penolpan, with its canals softly lit by yellow lanterns, the gardens glowing to candles and rich with the fragrance of night-blossoms was a city from fairyland; electricity, motors, fluorescents, water pumps would

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surely dim the charm— Covill, however, was insistent that the world would benefit by a gradual integration into the tremendous industrial complex of the System.

Twice Thomm passed by the pottery bazaar and twice he turned in, both to marvel at the glistening ware and to speak with the girl who tended the shelves. She had a fascinating beauty, grace and charm, breathed into her soul by a lifetime in Penolpan; she was interested in everything Thomm had to tell her of the outside universe, and Thomm, young, soft-hearted and lonely, looked forward to his visits with increasing anticipation.

For a period Covill kept him furiously busy. Reports were due at the home office, and Covill assigned the task to Thomm, while he either dozed in his wicker chair or rode the canals of Penolpan in his special red and black boat.

At last, late one afternoon, Thomm threw aside his journals and set off down the street, under the shade of great kaotang trees. He crossed through the central market, where the shopkeepers were busy with late trade, turned down a path beside a turf-banked canal and presently came to the pottery bazaar.

But he looked in vain for the girl. A thin man in a black jacket stood quietly to the side, waiting his pleasure. At last Thomm turned to him. "Where's Su-then?"

The man hesitated, Thomm grew impatient.

"Well, where is she? Sick? Has she given up working here?"

"She has gone."

"Gone where?"

"Gone to her ancestors."

Thomm's skin froze to stiffness. *"What?"*

The clerk lowered his head.

"Is she dead?"

"Yes, she is dead."

"But—how? She was healthy a day or so ago."

The man of the Mi-Tuun hesitated once more. "There are many ways of dying, Earthman."

Thomm became angry. "Tell me now—what happened to her?"

Rather startled by Thomm's vehemence the man blurted, "The Potters have called her to the hills; she is gone, but soon she will live forever, her spirit wrapped in glorious glass—"

"Let me get this straight," said Thomm. "The Potters took her—alive?"

"Yes—alive."

"And any others?"

"Three others."

"All alive?"

"All alive."

Thomm ran back to the Bureau.

Covill, by chance, was in the front office, checking Thomm's work. Thomm blurted: "The Potters have been raiding again—they took four Mi-Tuun in the last day or so."

Covill thrust his chin forward, cursed fluently. Thomm understood that his anger was not so much for the act itself, but for the fact that

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the Potters had defied him, disobeyed his orders. Covill personally had been insulted; now there would be action.

"Get the copter out," said Covill shortly. "Bring it around in front."

When Thomm set the copter down Covill was waiting with one of the three atom bombs in the Bureau armory—a long cylinder attached to a parachute. Covill snapped it in place on the copter, then stood back. "Take this over that blasted volcano," he said harshly. "Drop it down the crater. "I'll teach those murdering devils a lesson they won't forget. Next time it'll be on their village."

Thomm, aware of Covill's dislike of flying, was not surprised by the assignment. Without further words he took off, rose above Penolpan, flew out toward the Kukmank range.

His anger cooled. The Potters, caught in the rut of their customs, were unaware of evil. Covill's orders seemed ill-advised—headstrong, vindictive, over-hasty. Suppose the Mi-Tuun were yet alive? Would it not be better to negotiate for their release? Instead of hovering over the volcano, he dropped his copter into the gray village, and assuring himself of his gamma-gun, he jumped out onto the dismal stony square.

This time he had only a moment to wait. The chief came striding up from the village, burnoose flapping back from powerful limbs, a grim smile on his face.

"So—it is the insolent lordling again. Good—we are in need of bone-lime, and yours will suit us admirably. Prepare your soul for the Great Burn, and your next life will be the eternal glory of a perfect glaze."

Thomm felt fear, but he also felt a kind of desperate recklessness. He touched his gun. "I'll kill a lot of Potters, and you'll be the first," he said in a voice that sounded strange to him. "I've come for the four Mi-Tuun that you took from Penolpan. These raids have got to stop. You don't seem to understand that we can punish you."

The chief put his hands behind his back, apparently unimpressed. "You may fly like the birds, but birds can do no more than defile those below."

Thomm pulled out his gamma-gun, pointed to a boulder a quarter-mile away. "Watch that rock." And he blasted the granite to gravel with an explosive pellet.

The chief drew back, eyebrows raised. "In truth, you wield more sting than I believed. But"—he gestured to the ring of burnoosed Potters around Thomm—"we can kill you before you can do much damage. We Potters do not fear death, which is merely eternal meditation from the glass."

"Listen to me," said Thomm earnestly. "I came not to threaten, but to bargain. My superior, Covill, gave me orders to destroy the mountain, blast away your caves—and I can do it as easily as I blasted that rock."

A mutter arose from the Potters.

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"If I'm harmed, be sure that you'll suffer. But, as I say, I've come down here, against my superior's orders, to make a bargain with you."

"What sort of bargain can interest us?" said the Chief Potter disdainfully. "We care for nothing but our craft." He gave a sign and, before Thomm could twitch, two burly Potters had gripped him, wrested the gun from his hand.

"I can give you the secret of the true yellow glaze," shouted Thomm desperately. "The royal fluorescent yellow that will stand the fire of your kiln!"

"Empty words," said the chief. Mockingly he asked: "And what do you want for your secret?"

"The return of the four Mi-Tuun you've just stolen from Penolpan, and your word never to raid again."

The chief litsened intently, pondered a moment. "How then would we formulate our glaze?" He spoke with a patient air, like a man explaining a practical truth to a child. "Bone-lime is one of our most necessary fluxes."

"As Covill told you, we can give you unlimited quantities of lime, with any properties you ask for. On Earth we have made pottery for thousands of years and we know a great deal of such things."

The Chief Potter tossed his head. "That is evidently untrue. Look"—he kicked Thomm's gamma-gun—"the substance of this is dull opaque metal. A people knowing clay and transparent glass would never use material of that sort."

"Perhaps it would be wise to let me demonstrate," suggested Thomm. "If I show you the yellow glaze, then will you bargain with me?"

The Chief Potter scrutinized Thomm almost a full minute. Grudgingly: "What sort of yellow can you make?"

Thomm said wryly: "I'm not a potter, and I can't predict exactly—but the formula I have in mind can produce any shade from light luminous yellow to vivid orange."

The chief made a signal. "Release him. We will make him eat his words."

Thomm stretched his muscles, cramped under the grip of the Potters. He reached to the ground, picked up his gamma-gun, holstered it, under the sardonic eyes of the Chief Potter.

"Our bargain is this," said Thomm, "I show you how to make yellow glaze, and guarantee you a plentiful supply of lime. You will release the Mi-Tuun to me and undertake never to raid Penolpan for live men and women."

"The bargain is conditional on the yellow glaze," said the Chief Potter. "We ourselves can produce dingy yellows as often as we wish. If your yellow comes clear and true from the fire, I agree to your bargain. If not, we potters hold you a charlatan and your spirit will be lodged forever in the basest sort of utensil."

Thomm went to the copter, unsnapped the atom bomb from the frame, discarded the parachute.

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Shouldering the long cylinder, he said: "Take me to your pottery. I'll see what I can do."

Without a word the Chief Potter took him down the slope to the long shed, and they entered through an arched stone doorway. To the right stood bins of clay, a row of wheels, twenty or thirty lined against one wall, and in the center a rack crowded with drying ware. To the left stood vats, further shelves and tables. From a doorway came a harsh grinding sound, evidently a mill of some sort. The Chief Potter led Thomm to the left, past the glazing tables and to the end of the shed. Here were shelves lined with various crocks, tubs and sacks, these marked in symbols strange to Thomm. And through a doorway nearby, apparently unguarded, Thomm glimpsed the Mi-Tuun, seated despondently, passively, on benches. The girl Su-then looked up, saw him, and her mouth fell open. She jumped to her feet, hesitated in the doorway, deterred by the stern form of the Chief Potter.

Thomm said to her: "You're a free woman—with a little luck." Then turning to the Chief Potter: "What kind of acid do you have?"

The chief pointed to a row of stoneware flagons. "The acid of salt, the acid of vinegar, the acid of fluor spar, the acid of saltpeter, the acid of sulphur."

Thomm nodded, and laying the bomb on a table, opened the hinged door, withdrew one of the uranium slugs. Into five porcelain bowls he carved slivers of uranium with his pocket knife, and into each bowl he poured a quantity of acid, a different acid into each. Bubbles of gas fumed up from the metal.

The Chief Potter watched with folded arms. "What are you trying to do?"

Thomm stood back, studied his fuming beakers. "I want to precipitate a uranium salt. Get me soda and lye."

Finally a yellow powder settled in one of his beakers; this he seized upon and washed triumphantly.

"Now," he told the Chief Potter, "bring me clear glaze."

He poured out six trays of glaze and mixed into each a varying amount of his yellow salt. With tired and slumped shoulders he stood back, gestured. "There's your glaze. Test it."

The chief gave an order; a Potter came up with a trayful of tiles. The chief strode to the table, scrawled a number on the first bowl, dipped a tile into the glaze, numbered the tile correspondingly. This he did for each of the batches.

He stood back, and one of the Potters loaded the tiles in a small brick oven, closed the door, kindled a fire below.

"Now," said the Chief Potter, "you have twenty hours to question whether the burn will bring you life or death. You may as well spend the time in the company of your friends. You cannot leave, you will be well guarded." He turned ab-

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ruptly, strode off down the central aisle.

Thomm turned to the nearby room, where Su-then stood in the doorway. She fell into his arms naturally, gladly.

The hours passed. Flame roared up past the oven and the bricks glowed red-hot—yellow-hot—yellow-white, and the fire was gradually drawn. Now the tiles lay cooling and behind the bricked-up door the colors were already set, and Thomm fought the impulse to tear open the brick. Darkness came; he fell into a fitful doze with Su-then's head resting on his shoulder.

Heavy footsteps aroused him; he went to the doorway. The Chief Potter was drawing aside the bricked-up door. Thomm approached, stood staring. It was dark inside; only the white gleam of the tiles could be seen, the sheen of colored glass on top. The Chief Potter reached into the kiln, pulled out the first tile. A muddy mustard-colored blotch crusted the top. Thomm swallowed hard. The chief smiled at him sardonically. He reached for another. This was a mass of brownish blisters. The chief smiled again, reached in once more. A pad of mud.

The chief's smile was broad. "Lordling, your glazes are worse than the feeblest attempts of our children."

He reached in again. A burst of brilliant yellow, and it seemed the whole room shone.

The Chief Potter gasped, the other Potters leaned forward, and Thomm sank back against the wall. "Yellow—"

When Thomm at last returned to the Bureau he found Covill in a fury. "Where in thunder have you been? I sent you out on business which should take you two hours and you stay two days."

Thomm said: "I got the four Mi-Tuun back and made a contract with the Potters. No more raiding."

Covill's mouth slackened. "You *what?*"

Thomm repeated his information.

"You didn't follow my instructions?"

"No," said Thomm. "I thought I had a better idea, and the way it turned out, I had."

Covill's eyes were hard blue fires. "Thomm, you're through here, through with Planetary Affairs. If a man can't be trusted to carry out his superior's orders, he's not worth a cent to the Bureau. Get your gear together, and leave on the next packet out."

"Just as you wish," said Thomm, turning away.

"You're on company time till four o'clock tonight," said Covill coldly. "Until then you'll obey my orders. Take the copter to the hangar, and bring the bomb back to the armory."

"You haven't any more bomb," said Thomm. "I gave the uranium to the Potters. That was one of the prices of the contract."

"What?" bellowed Covill, pop-eyed. *"What?"*

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"You heard me," said Thomm. "And if you think you could have used it better by blasting away their livelihood, you're crazy."

"Thomm, you get in that copter, you go out and get that uranium. Don't come back without it. Why, you abysmal blasted imbecile, with that uranium, those Potters could tear Penolpan clear off the face of the planet."

"If you want that uranium," said Thomm, "you go out and get it. I'm fired, I'm through."

Covill stared, swelling like a toad in his rage. Words came thickly from his mouth.

Thomm said: "If I were you, I'd let sleeping dogs lie. I think it would be dangerous business trying to get that uranium back."

Covill turned, buckled a pair of gamma-guns about his waist, stalked out the door. Thomm heard the whirr of copter blades.

"There goes a brave man," Thomm said to himself. "And there goes a fool."

Three weeks later Su-then excitedly announced visitors, and Thomm, looking up, was astounded to see the Chief Potter, with two other Potters behind—stern, forbidding in their gray burnooses.

Thomm greeted them with courtesy, offered them seats, but they remained standing.

"I came down to the city," said the Chief Potter, "to inquire if the contract we made was still bound and good."

"So far as I am concerned," said Thomm.

"A madman came to the village of the Potters," said the Chief Potter. "He said that you had no authority, that our agreement was good enough, but he couldn't allow the Potters to keep the heavy metal that makes glass like the sunset."

Thomm said: "Then what happened?"

"There was violence," said the Chief Potter without accent. "He killed six good wheel-men. But that is no matter. I come to find whether our contract is good."

"Yes," said Thomm. "It is bound by my word and by the word of my great chief back on Earth. I have spoken to him and he says the contract is good."

The Chief Potter nodded. "In that case, I bring you a present." He gestured, and one of his men laid a large bowl on Thomm's desk, a bowl of marvelous yellow radiance.

"The madman is a lucky man indeed," said the Chief Potter, "for his spirit dwells in the brightest glass ever to come from the Great Burn."

Thomm's eyebrows shot up. "You mean that Covill's bones—"

"The fiery soul of the madman has given luster to an already glorious glaze," said the Chief Potter. "He lives forever in the entrancing shimmer—"

THE END

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BOOK REVIEWS

"The Humanoids," by Jack Williamson. Simon and Schuster, New York. 1949. 239 p. $2.00

Simon and Schuster, who are among the most enterprising of our general publishers, have now followed Van Vogt's "World of Ā" with a rewritten, expanded version of Jack Williamson's ". . . And Searching Mind" which was this magazine's outstanding serial in 1948. (The title of the original is misquoted on the jacket as ". . . And Folded Hands".)

There have been a few changes in the revision, which has consisted chiefly in building up information and characters which were taken for granted in the original, or which had been covered in "With Folded Hands . . .". The names of some of the principal characters have been changed: Webb Claypool becomes Clay Forester, little Dawn Hall is now Jane Carter, and Sledge, creator of the humanoids, is Warren Mansfield. Ironsmith remains himself, but his oddly contradictory character seems less well developed here as "that clerk" than through the little touches in the serial version.

The ending, on the other hand, seems a little more acceptable in the new book version. With Claypool-Forester I have been a diehard in this matter of the humanoids' ultimate victory and mankind's loss of the ability to forge his own destiny, but the argument for the platinum grid seems a bit sounder in its recast form. Maybe I'm just another unhealthy cell—

It is books of this kind which will win a serious audience of non-initiates to science fiction. The attractive jacket by Leo Manso will be an attention-getter; a less attractive binding makes possible the $2.00 price. P. Schuyler Miller

"The Best Science Fiction Stories: 1949," edited by Everett F. Bleiler & T. E. Dikty; introduction by Melvin Korshak. N. Y.: Frederick Fell, Inc., 1949, 314 p., $2.95.

The latest of the many recent science-fiction anthologies is a superior product. In fact, the compilers seem to have had the luck or the taste not to include any stinkers, which is unusual. While the stories are not equally good, and I'd hesi-

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tate to assert that any is among the best of all time, it's something to find an anthology with all the stories readable and some excellent. The editors seem to have tried to pick the truly best stories regardless of where they appeared or who wrote them; thus Bradbury has two while several of our well-known contemporaries have none. A sound approach.

Specific kudos, qualifications, and commentaries:

Ray Bradbury, "Mars is Heaven." Ingenious idea of a super-subtle Martian defense against the first Earth expedition. Wouldn't work for two reasons: If it were the first expedition the Martians wouldn't have had a chance to work the scheme out, and the crew would be men who had read science-fiction in their youth and so would be forewarned.

Lewis Padgett, "Ex Machina." A Gallegher story. Amusing gags, but also confusing, and the scheme for safe but thrilling tiger-hunting wouldn't work either, for the hunter, knowing he was protected in the manner described, would soon get no more kick than out of crossing the street. If you really want to make it exciting, give him a spear and let him take his chances. Hunting as an outlet for sadism, now, is something else.

Murray Leinster, "The Strange Case of John Kingman." Ingenious story of an insane superman. Also one of the few stories by Leinster in which the author does *not* campaign against bureaucrats and politicians.

Erik Fennel, "Doughnut Jockey." Gadget story, centered on a method of spaceship take-off. Good enough.

Martin Gardner, "Thang." Two-page fantasy in the Dunsany manner.

J. J. Coupling, "Period Piece." A mordant sentient-robot yarn, exceptionally good.

Frederic Brown, "Knock." A last-man-on-earth story. Good, but the professor would be foolish to kill all the carnivora. The herbivores would multiply unchecked till they ate up their range, and defective strains would flourish.

Poul Anderson, "Genius." Good enough idea, but too talky. A planet of geniuses.

Ray Bradbury, "And the Moon be Still as Bright." A sentimental tale of a sensitive intellectual, a crew of roughnecks, and the vanished Martians. It tries too hard to wring the last bit of pathos out of the theme.

Isaac Asimov, "No Connection." My favorite story of the lot. The predicament of an ursine culture faced for the first time with primates. Shrieks for a sequel.

Wilmar H. Shiras, "In Hiding." A well-known and successful superboy story.

Henry Kuttner, "Happy Ending." A trick story, involving a round-about-the-mulberry-bush chase through time and a back-to-front method of telling. A good trick, though, and the story has a bite.

L. Sprague de Camp

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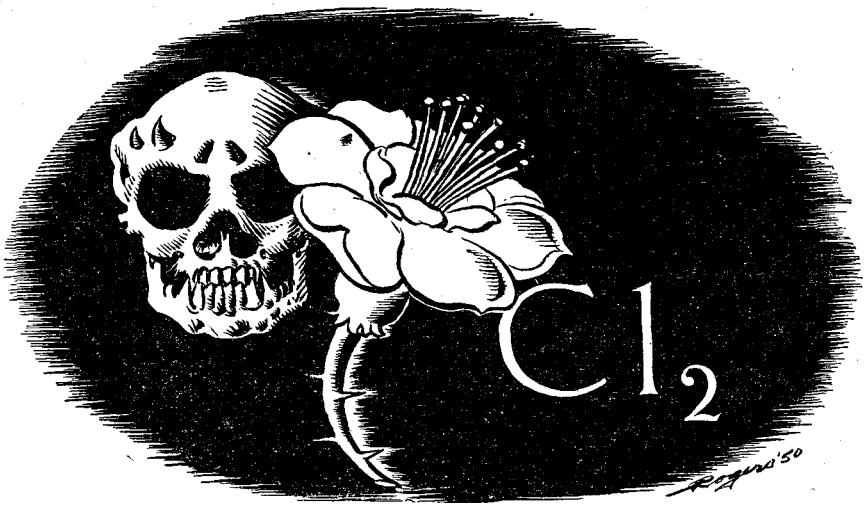

THE WIZARD OF LINN

BY A. E. VAN VOGT

Second of three parts. In the small-minded Empire of Linn, only one man had wit to see the larger, deadlier scale—and even Clane could not know how desperate the situation was!

Illustrated by Rogers

Synopsis

The "child of the gods" had made progress. Born a despised mutation into the ruling family of the half-barbarous, decadent Linnan empire about 12,000 A. D., he had grown up alomst unnoticed by those in the family and government who schemed endlessly for power. Contemptuously relegated to the temples for training, he learned something of the inner nature of matter from a few wise men who had guessed the secret behind the atom gods. By the time his potential enemies realized that he might be dangerous to their plans, he was too powerful to be destroyed.

He explored the gigantic pits—where the atom gods were believed to

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dwell—and found remnants of many destroyed cities. From these husks of what had once been megalopolitan centers, he gathered odds and ends of machinery and weapons, including a sphere of energy that absorbed or disintegrated all energy and matter it touched. The sphere reacted to the thought of the person who knew the cues to which it responded.

His discoveries explained many things. They explained the half-mythical stories about a long-dead wonderful civilization that had apparently existed some thousands of years before. They gave a clearer picture of how a bow and arrow culture could exist side by side with simple-type spaceships that any skilled metal worker could build. But the mystery of the forgotten disater remained unexplained.

With the help of the sphere of energy, Clane defeated the invasion of Czinczar and his barbarian army from Jupiter's moon, Europa. The captured Czinczar convinced him that the vague stories about an alien creature named the Riss—ancient books mentioned the name—were true. The barbarian leader showed the mutation the dead body of a large nonhuman creature. To him, its presence indicated that the Riss were back in the solar system.

Within a few months, a gigantic Riss battleship arrived on Earth. The invader destroyed all human beings who came near it, and rejected attempts at communication. Lord Adviser Jerrin—Clane's brother—who was a careful man of great integrity, had no solution to the problem. He was beset on the one hand by a wife, Lilidel, who was pathologically suspicious of Clane's political aspirations, and on the other hand by his own suspicions of Clane and—paradoxically—of Lilidel.

He realized finally that he had no recourse but to seek Clane's help against the enemy. He subsequently agreed to witness a test attack against the Riss battleship with the sphere of energy—an object which he now saw for the first time.

The sphere failed to damage the battleship, and Clane who knew something of the processes involved concluded that the weapon was too small to absorb so vast a machine. Its failure, however, did not invalidate its use against the Riss themselves, the problem being to get aboard the battleship.

By sacrificing a large portion of the Linnan fleet in a feint, he successfully boards the invader, and the sphere quickly destroys all Riss aboard. However, the fate of the big ship is observed by interstellar television from the Riss home planet. Clane, who did not even know that such instruments existed, realizes that a Riss fleet can now be expected.

Meanwhile at Jerrin's headquarters, an emotionally sick Lilidel poisons her husband when she learns that Jerrin plans to make Clane—and not their son Calaj—his heir. When Clane finds out what has happened, he reluctantly decides to allow the group behind Lilidel to vote seventeen-year-old Calaj to be Lord Ad-

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viser. He intends to concentrate his energy against the Riss.

During the attack against the Riss battleship, the bold and skillful barbarian leader, Czinczar, successfully captured the sphere of energy from Clane—without, however, knowing how to use it. He subsequently denies that he possesses it, and resists all Clane's desperate efforts to get it back. In the end Clane decides that the sphere is less important than the co-operation of Czinczar in the fight against the Riss. He orders the entire barbarian army aboard the lower half of the gigantic captured battleship. The upper half is occupied by a Linnan army.

Before going aboard, every man has to be "photographed" in order to be immunized against a "protective" resonator which guards the Riss ship.

Before boarding the ship himself, Clane goes to the city of Linn. There, an apparent attempt to assassinate him turns out to be an attempt to gain his attention on the part of a young noblewoman, Lady Madelina Corgay. She wants to marry him. Clane, who has always been shunned by the aristocracy, gratefully accepts the offer, and they are married.

On the day that the newly elected —by the Patronate—Lord Adviser Calaj arrives in the city of Linn, Clane visits the Central Palace, and studies the body of the dead Riss that is there. He also makes a personal call on Calaj, and compels the half-demented boy to sign a document which will help the country to prepare for the Riss invasion. He gives the boy some advice, but realizes he is much more of a mental case that he had previously realized.

As he prepares to leave Earth, he foresees that hard days are ahead for all those who depend on the Calaj government.

X.

"But what did you sign?" Lilidel raged. "What was in the document?"

She paced the floor of his apartment in a frenzy of distress. Calaj watched her sullenly, annoyed at her critical attitude. She was the one person who could make him feel like a small boy, and he was silently furious at her for reminding him once again that he should have read what he had signed.

He was not anxious to think about Clane's appearance at the palace five weeks before, and it was annoying that the incident remained as fresh in his mother's mind as the day it had happened. "Why should I read the document?" he protested. "It was just one more paper. You people are always bringing me something to sign; what's one more? And anyway, he's my uncle, and after all, he didn't make any trouble about my becoming Lord Adviser."

"We can't let him get away with it," Lilidel said. "You can just picture him laughing to himself, thinking we're afraid to act against him openly."

That also was the latest of an endless repetition. Psychoneurotic

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Calaj could not help wondering if his mother was not a little crazy.

Lilidel raged on: "We've sent queries to all the governors, with instructions to scrutinize official documents, with particular emphasis on checking back with us on anything relating to the military establishment.

"Of course"—her tone grew bitter—"asking some of those people to co-operate is like talking to a blank wall. They pay about as much attention to us as if they were the government and we merely hirelings."

Calaj shifted uneasily. His mother's assumption of the word "we" rankled. She had no official position, and yet she acted as if she was the Lord Adviser, and he only her son and heir. He remembered, not for the first time, that Clane had said something about asserting himself. The trouble was, how could he possibly ever dare to oppose his mother and all these dominating people?

It's time I did something, he thought.

Aloud he said: "But what's the good of all this? Our spies report that he isn't at any of his estates?" He added, with a sly dig that had become one of his defenses against his mother's dominance, "You'll have to locate him before you do anything against him publicly, and even then I'd hold Traggen in front of me, if I were you. As head of the camp legions, Traggen should do the dangerous work." Calaj stood up. "Well, I think I'll drop over to the games."

He sauntered out.

Lilidel watched him depart uneasily. She was not aware that, in Clane's estimation, her action of poisoning Jerrin had set up conflicts inside her that were not resolvable. But, in spite of the murder, way in the back of her mind, she applied her dead husband's standards of dignity to the great position which Calaj now had.

It had been a tremendous shock to her when Calaj had insisted that the festival celebrating his appointment be extended beyond the three days originally set for it, free to the people, but at colossal expense to the government. The games were still continuing, his interest in them unabated.

Already, there had been even more disturbing incidents. A group of youths, returning with Calaj from the games to the palace, were astounded to hear him suddenly burst out: "I could kill all of you! *Guards, kill them!*" The third time he shrieked the order the nearest guard, a big brute of a man, noticed one of Calaj's companions had his hand on a half-drawn sword. In one synchronized movement, he slashed at the boy with his saber, nearly cutting him in two. In the resulting confusion, nine of the eleven young noblemen were slaughtered. The remaining two escaped by taking to their heels.

Lilidel had had no alternative but to report it as an attempted assassination. At her insistence, the two

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boys who had escaped were dragged through the streets at the end of hooks, and eventually impaled against the pilings of the river's edge.

Standing there in his apartment —where she had to come these days, if she hoped to see him—Lilidel had the unhappy conviction that what had happened was only the beginning.

During the weeks that followed, she discovered that Traggen had selected several companies of bully boys to act as Calaj's personal guards, and that the men had orders to accept the slightest command given by the Lord Adviser. She could not help suspecting Traggen's motives, but she could find no fault openly with his orders. It was natural that the Lord Adviser Calaj should have automatic obedience to his commands. What was unnatural were the commands that Calaj gave, and all too obviously Traggen the schemer could have no direct control over that.

Month after month, the stories trickled in to her. Hundreds of people were disappearing, never to be heard of again. Their places were swiftly filled by newcomers who knew nothing of what had gone before, or else dismissed as nonsense the vague stories they had heard.

Everywhere in Linn, people in every walk of life intrigued to gain access to the Lord Adviser. The yearning will of thousands of social climbers to become a part of the palace circle was a pressure that never ended. For generations, that had been the road to power and position. But now, success in such a purpose precipitated the individual into a nightmare.

All the trappings and ornamentation that each person's heart craved were there. He attended banquets that consisted almost entirely of out-of-season delicacies, and rare and costly foods from the planets. Each night, the palace ballroom was awhirl with gayly attired dancers. On the surface everything was as it should be.

Usually, the first few incidents failed to alarm the individual. Someone in the crowd would cry out in fear and pain; and it was often difficult to find out what had happened.

Besides, it was happening to someone else. It seemed remote and without personal meaning, and that was true even when it took place close by. The guards—so it was reported to Lilidel—had developed a skillful technique of snatching up the dead body, pressing in close around it, and racing out of the nearest door.

In the beginning it was hard for any particular person to imagine that such a thing could ever happen to him. But the strain began to tell. No one who was accepted in high goverment circles dared to withdraw from active social life. But Lilidel began to notice that her listeners were no longer completely sympathetic to her blurred references to the danger of assassination. Too many Linnan families were in

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mourning for a son or daughter who had been casually killed by Calaj's butchers.

A year and three weeks went by.

One day Lilidel's ceaseless search for a clue to the nature of the document Calaj had signed for Clane was rewarded. A paragraph in a routine letter from a provincial governor was brought to her attention. It read:

"Will you please convey to his excellency, the Lord Adviser, my appreciation of the precautions the government has taken to insure the safety of the populace in the event of another invader bombing out cities. We of Reean, who have before us always the awful example of what happened to our neighbor city of Mura, are perhaps in a better position to understand the practical brillance of what is being done. In my opinion, more than anything else this has established the reputation of the Lord Adviser among people who formerly might have considered him too young for his high office. The breadth of statesmanship revealed, the firm determination, the break with precedent—as you know farm people are usually the least patriotic and the most commercially minded of the populace in an emergency—are all proof that the New Lord Adviser is a man of remarkable insight and character."

That was all there was, but it was enough for Lilidel. A week of careful inquiry produced the picture of what had happened, and was still happening.

Everywhere except around Linn, city people had been organized and assigned to nearby farms. Until further notice, and under heavy penalties, they were ordered to spend ten percent of their incomes to construct living quarters—and an icehouse for food storage—on the farms to which they were to go if an emergency was proclaimed.

The buildings were to be so constructed that they could be converted into granaries, but for three years they were to remain empty. The city people would do the building, and they were to visit their farm once a month as a group in order to familiarize themselves with the environment.

At the end of three years, the farmer could buy the buildings at fifty percent of the cost of materials—but with no charge for labor—but he could not tear them down for another ten years. The food in the icehouse remained the property of the city people, but must be disposed of by the end of the fifth year.

Lilidel satisfied herself that this was indeed the result of the document which Calaj had signed for Clane, and then she consulted agricultural experts. They were amazed. One of them said dazedly:

"But you don't do that kind of thing to farmers. They won't stand for it. They won't co-operate. And the least we can do now is to *give* them the buildings at the end of the three years."

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Lilidel was about to agree with the indictment of the plan, when she remembered—it kept slipping her mind—that Calaj was supposed to have sponsored it.

"Nonsense!" she brushed aside the objections. "We will proceed exactly as we have in the past."

She added, "And, of course, we will now extend it to include the city Linn."

She told Calaj afterwards, triumphantly, "The beauty of it is that Lord Clane has actually strengthened your position." She hesitated. There was one thing wrong with her victory. After more than a year there was still no sign of the mutation. He had vanished as completely as if he had died and been buried. Victory—when the loser did not know you had won—lacked savor.

"But what's all this about?" Calaj asked peevishly. "What are the precautions against?"

"Oh, there was some invading ship here from one of the little known outer planets. Your father worried a great deal about it, but when the fleet attacked they had little or no trouble driving it away. I suppose we should have pursued them and declared war, but you can't be fighting the barbarians all the time. The important thing is not the precautions but that the people seem to approve of them. And they think you're responsible."

Calaj said: "But I only signed one paper." It was a point that had been bothering him for some time in a curious irksome fashion.

His mother stared at him, baffled. She sometimes had difficulty following her son's associations. "What do you mean?"

Calaj shrugged. "The reports say that official orders were posted up in every district with my name and seal signed to them. But I only signed one."

Lilidel was white. "Forgeries," she whispered. "Why, if they can do that—" She broke off. "Come to think of it, the one sent us did look odd."

Trembling, she sent for it, and presently they were bending over the document. "It's my signature all right," said Calaj. "And that's the seal."

"And there were hundreds like this," whispered Lilidel, overwhelmed.

She had never before seen a photostat.

A week later, she was still undecided as to whether she should feel satisfied or dissatisfied about the situation when a terrible report reached her. Hundreds of gigantic spaceships were hovering over the mountain areas of Earth. From each one of them thousands of monsters were being landed.

The Riss had arrived.

XI.

Lord Clane was very much alive indeed. At the appointed hour, more than a year before, he had sent a peremptory order to all sections of

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the giant ship, and then settled himself at the controls.

The *Solar Star* began to lift. The initial movement was normal enough, but the difference showed within a few minutes. It grew dark with extreme rapidity. The acceleration made the men in the control room look at each other with sickly grins.

Clane noticed the reaction, but he stayed on his couch beside the touch controls. He had a hollow feeling at the pit of his stomach, but only he knew their destination.

After three hours he reduced that tensing acceleration to one gravity, and went up to his own apartment for dinner. Conscious of the difficulties that thousands of people in the decks below would have in preparing their meals, he waited an hour and a half before again applying acceleration.

Five hours ticked by before once more he reduced the acceleration to one gravity, and allowed another hour and a half for the preparation and consumption of food. The next period of acceleration was four hours. At that time he reduced the tremendous pressure briefly while his new instructions were circulated.

"The people aboard this ship," he ordered, "will now sleep for seven hours. Acceleration will be somewhat greater than normal but not so great as it has been. Be sure and take advantage of the opportunity."

For the first time then he allowed his officers to transmit the pattern of travel to their subordinates, and so on through the ship: "Two (breakfast), three (acceleration), one and one half (dinner), five (acceleration), one and one half (supper), four (acceleration), seven (sleep)." The extra time for breakfast allowed for dressing and toilette.

"This," said Madelina, "is silly."

Clane studied her as she sat across the breakfast table from him. It was their fourth morning of living in the spaceship. He had wondered how the pressure of acceleration, and the dreary routine would affect her. For several meal periods now, he had been finding out. As a wife, Madelina was as outspoken as she had been while a captive. It was time she found out the truth.

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She looked at him now, her dark eyes flashing. "I see no reason whatever," she said, "for us to run away. You've got to be bold in this world, Clane. Maybe that's why you've never got anywhere."

Her casual dismissal of all his achievements startled Clane. But there was an even more disturbing implication behind her words. After thirty years of being a free agent, he must now adjust himself to the presence of somebody who could talk to him in this critical but undiscriminating fashion. Most unsatisfactory of all, intellectually, was his own reaction to her presence.

Gratitude! A woman of the Linnan aristocracy had sought him out to marry him. She was little more than a child, impulsive, impatient, undisciplined, lacking the experience and training that alone would give balance to her judgments. But he was grateful to her nonetheless. And anxious. Suppose she grew impatient and decided she had made a mistake. He did not doubt that she would leave him, lightly, disdainfully, perhaps seeking some other protector aboard the ship. Czinczar? It was not a possibility he cared to consider.

It was time she found out that this was not just a flight from Lilidel. He said, "After breakfast, why don't you come up to the control room with me. There's an all glass room next to it from which you can get a wonderful view of the stars."

Madelina shrugged. "I've seen the sun before in space."

It seemed to be a rejection, and Clane wasn't sure whether he should be relieved or unhappy. And then, an hour later, just as he was about to increase the acceleration, she came into the control room.

"Where's this viewing room?" she said cheerfully.

Clane saw several officers look at each other significantly. Silently furious, Clane walked towards her. Her action was inexcusable, since he had told her what the pattern of flight would be.

"This way," he said.

She must have noticed the suppressed anger in his voice. But she merely smiled sweetly, and walked in the direction he indicated. She stopped as she came to the door of the viewing room. He heard the hissing intake of her breath, and then she had moved forward and out of sight. When Clane came to the door, he saw that she was already standing with her face pressed against the transparent wall.

Seemingly inches beyond was the great dark itself. Silently, Clane took up a position beside her. His anger was unabated. For this visit of Madelina's, casually calculated to be annoying, fitted in with all the more foolish things that human beings were doing on Earth on the eve of disaster. Each day that went by, it grew clearer that the interrelationships of human beings was inextricably bound up with the Riss danger itself. It was not two or more, but one complex problem.

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With a dark awareness of how intricate was this alien war, Clane waited for Madelina's reaction.

The viewing room was unique from the transparent sections in other parts of the ship in that the "glass" bulged out. From where they stood, it was possible to look both forward and backward. Almost directly behind the ship, a very bright star was visible.

Clane said in a low tone: "Madelina, you've made a fool of me before my own staff, coming up like this."

Madelina did not look around, but her shoulders lifted ever so slightly, defiantly. She said: "I think this whole flight is ridiculous. You men ought to be ashamed of yourselves, running away. Personally, I won't have anything to do with it."

She turned impulsively, but there was an intense expression on her face. "Now, look, Clane," she said, "I'm not going to embarrass you again, so don't worry. You see, I know I'm going to be good for you. You're too careful. You don't realize that life is short, and you've got to cut corners and do things fast and without fear. There's only one thing I'm scared of, and that is that I'll miss something, some experience, some vital part of being alive."

She went on earnestly, "Clane, I tell you this trip is a mistake. We should go back and boldly take up residence on the estate. Certainly, we must take precautions against danger, but even if we do get caught in one of Lilidel's traps I'm ready. I love life, but I'm not going to live it on my knees."

Once more she broke her thought abruptly. "What planet are we going to? Mars, or Venus?"

"Neither."

"One of the moons, perhaps? If it's somewhere interesting, Clane, I might feel less impatient. After all, a girl ought to have a nice honeymoon." She pointed at the bright star behind them. "What planet is that?"

"It's the Sun," said Clane.

He helped her presently to one of the nearby couches, and returned to the control room.

A few minutes later, the *Solar Star* was plunging at tremendously increased acceleration through a space that grew darker with each passing hour.

It was during the supper hour on the fifth day that Clane was informed that Czinczar desired an audience. He hesitated, fighting an instant impatience. Another human hurdle, and an important one.

"Bring him in," he ordered finally.

The barbarian leader came in thoughtfully and accepted the chair to which Clane motioned him. His face was a study of conflicting emotions, but his voice was steady when he finally spoke.

"You madman!" he said.

Clane smiled. "That's what I thought your reaction would be."

Czinczar brushed aside the remark with an angry gesture.

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"What's the logic behind such a move?"

"Hope."

The barbarian's lips curled. You've given up the political control of a planet, the enormous geographical distances of Earth to which men can retreat in case of an emergency—for a dream."

Clane said, "This matter of political control is an obsession with you, Czinczar. In the face of a Riss invasion, it is a meaningless achievement. This is not a problem that will be solved in the solar system."

"Nor by a man whose first thought is to escape from danger into outer space," Czinczar sneered.

Clane smiled again, more grimly this time. "If you knew what plans I have, you would swallow those words."

Czinczar shrugged. "Just where are we going?" he asked at last.

Clane told him, "It's a star I located on an old star map of this part of the galaxy."

Having used those magic words, he had to hold himself calm. "Galaxy", other "stars"—even to him who had discovered so much of the science of the days of old, there were new meanings here, emotional excitements on a level beyond anything he had ever known.

"It's about sixty-five light-years from Sol," he said steadily.

He watched Czinczar to see if the fantastic distance he had named had any meaning. But the barbarian seemed to be involved in a mental conflict. He looked up finally, his face twisted.

"Men—out there?" Even after a minute of silence, he sounded astounded.

Clane said earnestly, "I want you to picture the golden age of science, Czinczar. Surely, this idea is not new to you, who brought the first Riss body to Linn. Long ago, man's civilization attained a stature that has never since been equaled. In those marvelous days, ships not only went to other planets, but to other stars.

"Then the aliens came. A bitter war ensued. The civilization of the solar system was virtually buried with the destruction of *all* its cities. But out in space, colonies escaped, and continued to develop scientifically beyond anything now known on Earth."

The young man climbed to his feet. "Your excellency," he said in a formal tone, "in my opinion you have by your actions destroyed the solar system. In leaving the Linnan Empire in the control of a mad youth and his murderess-mother, you have at one stroke handed the fate of the known human race over to a government that will be thrown into confusion at the moment the Riss attack, and will remain in a state of confusion until the end. Your imaginative flight is illogical in the first place because, if other men had found a means of fighting the Riss, they would by this time have contacted the people of Earth."

Clane hesitated; then, "There are several possible answers to that.

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Colonies don't build interstellar ships. Or if these have, then by the time they developed them they had forgotten that Earth existed. Or at least forgotten where it was in space."

Czinczar controlled himself with a visible effort. "Your excellency," he said, "I urge you to turn back. I also believe in imagination, or I would never have achieved my present position. Nor would I have dared to take the enormous risk of attacking Linn. If I had thought you would make this flight into darkness, I would not have surrendered to you, sphere or no sphere."

Clane said, "Czinczar, you're a great disappointment to me. In a curious—I suppose illogical fashion—I counted on your seeing the importance of forgetting all irrelevant personal ambition. I counted on your denying yourself the pleasure which you obtain from military combat—you have some scheme, I know, of fighting a purely defensive war against the Riss. All that, I say, I expected you to forgo in this crisis. And what do I find?"

He made a movement with his hand that expressed some of his own fury at the petty things that Czinczar had done. "From the beginning you have plotted primarily for personal advantage. You have forced other men to take defensive action against you—"

"The idea being, of course," sneered Czinczar, "that these other individuals were not doing any plotting of their own, and would not have intrigued against each other if I had not come on the scene."

Clane said quietly, "Each man must forget his own schemes, his own desires, for the duration. There can be no exceptions."

Czinczar was cold and contemptuous. "Harping on the same old subject, aren't you? Well, I refuse to talk further to a person who has lost his good sense because of a childish, naive dream. The able man who abdicates his own ideas betrays himself and his state. He must fight for his own convictions against the firmly held ideas of other men. I am convinced that, having adopted such a juvenile attitude, all your plans are now suspect."

He stalked to the door, turned. "Don't forget, the reason the Riss are attacking the solar system must be because there are a limited number of habitable planets in the area of space that can be reached by their ships. I hope you're sure that *we* will find a habitable planet when we reach our destination about—" He paused, abruptly tense. "How long will it take?"

"Something over a year," said Clane.

Czinczar groaned. "Madness," he muttered. "Utter madness!"

He went out, leaving Clane disturbed and upset. The barbarian leader was unquestionably one of the outstanding military logicians of the age, a bold and careful man who had probably examined the entire Riss situation with a minute attention to

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detail. No fear of unknown distances would influence his decisions.

And yet, his analysis must be wrong. Czinczar simply did not have the understanding of science that alone made possible a considered judgment. All his courage, his calculated risks, and his military skill would merely delay the enemy, not defeat him.

If the answer was not available out in space, then there was no answer.

XII.

A week of routine flight went by. At first Clane held himself aloof from some of the precautions that he would in the past have taken against a man like Czinczar.

"If intrigue is ever going to end," he told himself, not for the first time, "then somebody has to take the first step. You have to show people that you trust them."

One little point jarred on him. During that week, it grew in his mind to uneasy proportions. The point was simple. Czinczar had stated unequivocally that he would not co-operate.

Abruptly, on the sixth day, that recollection broke through Clane's reserve. He began to spy on Czinczar. He was intensely disappointed, though, he realized bitterly, not basically surprised, to discover that massive military preparations were under way in the lower half of the ship.

The discovery depressed Clane because Czinczar clearly counted on his own precautions to prevent any spying. It showed up his ignorance of science. His actual preparations were skillful and bold. He had readied Riss-type explosives he had discovered in one of the holds. Crews with battering-rams had been trained to smash down connecting doors which the explosive failed to shatter. The entire barbarian army—a magnificent array of fighters—was divided into groups of a size more suitable for battle in a confined area.

The date of the attack was set by Czinczar for the sleep period of the eighth "night".

Twelve hours before the attack was scheduled, Clane invited the barbarian leader to come up and inspect Riss weapons. He recognized that he was up to his old tricks. He told himself defensively that what he hoped for could only be achieved gradually. In the meantime he must accept the old environment of human machinations that he knew so well.

There was a delay of several hours, while Czinczar discussed the timing of the invitation with his general staff. Finally, he sent a messenger to Clane accepting the offer. But the attack was not called off.

Czinczar arrived at the appointed time with two engineer officers. He ignored Clane's extended hand, saying curtly, "You surely don't expect me to be friendly to a man who tortured me."

"But didn't kill you," Clane pointed out with a faint smile.

"That," said Czinczar, "is because

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you hope to make use of my forces. Since that involves my own abilities, I must have a picture of the possibilities of our situation, so that I can start training my men. Let us proceed."

Clane felt vaguely sorry for the great man. He was so obviously unaware of what he was up against.

It emphasized—if emphasis were needed—how little he was qualified to judge the hard realities of the Riss war.

It grew clear from the barbarian's next words that he had specific ideas as to what weapons he wanted to see. He said, "Before coming aboard, I was 'photographed' by a machine. That was subsequently done to everyone. What was the purpose?"

Clane led the way to the special weapon control room, with its huge chairs and oversized equipment. He remained in the background while the barbarian engineers exclaimed over the glittering machines and instruments. Czinczar evidently shared their amazement, for he looked around soberly, and then said:

"I can see that the Riss are scientifically our superiors in every department."

Clane said nothing. Weeks ago, that had been his reaction, too. Now, he wasn't so sure. Involuntarily, he glanced down at the floor. It was covered by a finely woven fiber mat. In looking under the mat—as he had done as a matter of course—he had found that once there had been another floor covering, a plastic coating of some kind. It was all gone except for chips and fragments.

His workmen had been unable to remove those pieces. The material defied steel chisels.

To Clane, that suggested this was an old ship. The plastic had deteriorated unevenly over the centuries—*and the Riss didn't know how to replace it.*

There was other evidence. Some of the control switches were dummies. In tracing their leads, he had come to empty rooms which looked as if they had once contained machines.

The implications were titanic. The Riss, too, had an unbalanced civilization. More fortunate than man, they had been able to continue to build intertsellar ships. Or perhaps they were actually using ships that had fought in the deadly war fifty centuries ago, and simply did not know how to rebuild some of the machines in them.

That gave Clane his picture. Two races struggling up out of the abysmal night, with the Riss far in the lead in the race for scientific advantage.

As of now, their advantage was overwhelming. Man would go down in the first major engagement.

Czinczar was speaking again. "I expect you to stop me if I do anything wrong."

He seemed to have forgotten the protector "photographing" machine. He settled himself in one after the other of the huge control chairs, and began to manipulate dials. With each

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move he asked questions, while the engineers took notes. "What does this do? And this? And this?" He listened intently, and the answer never seemed too detailed for him. Several times, in spite of extensive explanation, he shook his head and frankly admitted, "I don't understand how that works."

Clane refrained from making an even more extensive admission. He had taken most of these machines apart, and put them together again. But just how they worked was a problem on a different level of understanding. He had made attempts to duplicate apparently simple looking plates and circuits, with completely negative results.

Fortunately, the great ship's storerooms were packed with duplicates, so extensive experiments were still possible.

Czinczar was beginning to understand purposes now. His gaze moved quickly along the tremendous instrument board; and it was not surprising that he walked over to the "protector" machine, and stared down at it. At this control end, it bore no resemblance to the telescopic "photographic" machine, which had taken his "picture". Obviously, he stared down at the array of locks that were rigidly clamped over every dial.

Clane came forward. "This is it," he said.

Clane began by giving some idea of the intricate science involved, and

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of the advanced mechanical arrangement.

"As you may or may not know," he said, "the ninety-odd chemical elements in the periodic system are made of atoms, which in turn are complex structures involving nuclei and orbital particles. The outer particle 'ring' of each atom is of first importance in any chemical reaction. Where the outer 'rings' of two elements are very similiar, it is difficult to separate them chemically.

"Naturally, clusters of such atoms are in a state of turmoil. They send out a constant barrage of radiation on different energy levels. It would seem at first thought that at each particle level, the radiation of one object would be exactly similar to the same energy radiation from another body. According to the Riss diagrams I have examined—and there are some very interesting films aboard to illustrate the text—these radiations differ on a basis of spacing and timing. They exist in a different space-time. I confess that's been a hard formulation for me to grasp."

He paused. It was the first time he had talked of this to anyone; and he was conscious of a tension of excitement inside him. Sometimes, when he thought of the colossal treasure-house of science he had captured along with the Riss ship, the emotional impact threatened to overwhelm him. That was the feeling he had to fight now. He went on finally, huskily:

"This machine"—he pointed at the "protector" instrument board—"sends out a stream of radiation, which permeates the space-time in and around the ship. The radiation runs up and down the scale of energy several hundred thousand times a second. Whenever it resonates—that is, enters the space-time of some other radiation—the temperature of the affected object goes up. This happens to all except 'protected' atoms.

"The nature of the 'protection' is basically simple. When you were photographed, a pattern was set up in a series of tubes here, whereby your position in space was thereafter recognized. This recognition could be used either to single you out for destruction from among billions of other objects, or it could be used to 'protect' you. As of this moment, the radiation skips over you and me and the other people in this ship. It skips over every object in the ship by the process of recognizing them and rejecting them several hundred thousand times a second."

Clane finished, "This is one of the most deadly weapons ever invented for use against flesh and blood creatures. If I had known they had something like this aboard, I would not have considered making an attack. Every man in the spaceships that took part in the battle was killed. Not just a percentage of them, but every single Linnan in the part of the fleet that actually attacked. My men and I escaped because the Riss patrol boat we were

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in had a 'protector' camera aboard, which automatically 'photographed' us. Apparently, they used it so that the liftboats could bring specimens to the ship."

The account completed, he waited. He was not too surprised at the prolonged silence. Finally, Czinczar said, "Does it operate only against living matter?"

"It's set that way."

"But it could be used against inanimate objects? You either deliberately or unconsciously implied that in your use of such words as 'object'."

Clane hesitated. Not for the first time, he was startled at the discernment of the barbarian leader. He shrugged finally, and admitted the fact. "Frankly, I don't quite see how it can effectively be used against inorganic matter. It raises the temperature of the entire affected area about sixty degrees. That's fatal for life organisms, but even a tree would survive it."

"You would say then that this instrument could not destroy our planet?"

"I don't see how."

"That," said Czinczar, "is what I wanted to know."

His tone indicated that he had guessed the purpose of the long explanation. His eyes met Clane's, and there was a sardonic light in them.

"You'll have to try again," he said. "I don't scare easily."

He seemed dissatisfied with the limitations of his rebuttal. For he hesitated, glanced at his engineers, parted his lips to speak, and then apparently changed his mind. Silently, he settled himself into the next chair, and began to manipulate the dials of the weapon controlled from it.

Clane held back his disappointment. He intended to come back to the matter, and he had a feeling that Czinczar did too. While he waited, he explained the new weapon.

It operated on a molecular level. It was definitely not radioactive. It seemed to set up a terrific agitation in the molecules of an object. Result: the object burned with a blue-white heat, dissolving quickly into its component gases. It could be used against organic or inorganic matter, but it was a limited weapon in that it had to be aimed and held briefly on its target. He had still to find out if it could be used automatically.

Clane continued, "I've merely tested it. I haven't had time to examine it." He paused ever so briefly, then finished deliberately, "I gave most of my attention to the 'protector' device. It's existence nullifies everything we've got."

Czinczar said quickly, "And the sphere nullifies it.

He looked around, and squarely met Clane's determined gaze. "Think, your excellancy, if they try to land, the sphere not only decimates them; it destroys every single Riss in the vicinity."

"All they have to do," said Clane bleakly, "is fly low over one of our cities with this 'protector' device

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on, and every person in that city dies. A hundred ships could wipe out the population of Earth in a given time."

Czinczar was facing him now. "Then why did they use atomic bombs against the cities they destroyed?" His tone challenged Clane to give a logical answer.

Clane said slowly, "I think it's a weapon they developed since the war that originally destroyed man's civilization. I don't think they wanted us to find out about it from an exploring ship. Its potentialities can be partially nullified by evacuating cities and scattering the population."

Czinczar shook his head. "Your answer is not complete enough. An irresistible weapon doesn't have to be concealed. You say you've tested it. Knowing your thoroughness I'm going to guess that you know its range."

"About two and a half miles," said Clane without hesitation.

"Since it has a range," said Czinczar, "it obviously must be more effective at one mile than at two."

Clane nodded. "The nearer to the ship the higher the temperature it produces. At two and a half miles it is still fatal, but the individual may be in agony for several hours before death comes."

"What happens when a barrier is placed between it and its intended victims?"

"The men in the Linnan fleet," said Clane, "were protected by several inches of metal, but everyone of them died."

"According to your account," flashed Czinczar, "they should have died when they were still more than two miles from the invader. Actually, all of them got close enough for them to ram the big ship. If the ship had been out of control for the full two miles, only a few of them would have reached their objective."

Clane said irritably, "All right, suppose a small portion of the population successfully burrows out of reach of this weapon. A thousand or ten thousand people survive to fight on. Surely, that is not a satisfactory solution. The Riss could ignore them almost completely."

Czinczar climbed to his feet. "Your excellency," he said angrily, "it is clear that you and I do not understand each other."

To Clane, something else was clear. The argument had reached a critical stage.

"Your excellency," Czinczar began, "I am predominately a military man, you are a scientist. To me, your fear that people may be killed has little or no meaning. People are always being killed, if not in wars, then by other methods. But the wars are ever present, so we need look no further."

He went on grimly, "It is the essential nature of a military man that he must think in terms of percentage losses. Only the skillful leaders must be protected. During a war the death of a first-class military

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strategist can be a national disaster. The resulting defeat may mean slavery by one means or another for the entire population. In an alien war it can mean the extermination of the race."

Clane parted his lips at that point to interrupt, changed his mind, and then thought better of that, and said dryly, "And who shall decide on the importance of the man? He himself?" He broke off. "Go on," he urged.

Czinczar shrugged angrily. "In certain rigid governmental structures, a single man may lose every battle and still remain in power. But a brave and determined general with enough supporters can break through such an egocentric pattern, and seize control of the defense forces. That situation existed in Linn for one person — yourself." Contemptuously, "You lost your nerve."

"Proceed," said Clane coolly.

"The importance of the leader," said Czinczar, "constitutes one principle of warfare. Another one, even more basic, is that you do not surrender your land to the invader except for specific military purposes, and in the belief that you are actually strengthening your position. Usually, you make him pay a price for it."

Clane said, "If we exchanged one man for two Riss, we would exterminate ourselves, and the natural increase on one or two Riss planets would make up the Riss losses in a single year. Actually, at a conservative estimate, we would lose ten of our own people for every Riss we killed."

"You can't prove that," Czinczar snapped. He waved a hand in annoyance. "Never mind." He went on, "You are wrong in believing that I oppose such a journey as this. But I believe it's too soon. The solar system must be defended first. We must show these aliens that they cannot make a successful landing on any of our planets. Later, when we have established our lines of defense, when we know where and under what terms we can fight, when the populace is trained to the conditions under which the battle must be waged, then and only then can we trust other individuals to carry on."

His eyes were glowing, his face was set in hard lines, his lips tightly drawn together. "There," he said, "you have my argument."

He sat down, and gazed at Clane expectantly. The latter hesitated. So far as he could see, nothing new or important had been brought out. He had considered every one of Czinczar's points long ago, and found them inadequate to the situation. He said finally, slowly:

"In the first place, I reject the notion that one or two men are indispensable to the human race, even if they have managed by political cunning to convince a large following that the group can obtain power through them. I have personally told many individuals how I think a war against the Riss would have to be fought. In a crisis, these gentlemen will make their counsel felt."

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"Too late," interjected Czinczar.

Clane went on, "This war between Riss and human cannot be won by making a stand on a single planet, or in a single sun system. I am not even sure that an attempt should be made to win it. There you have my second point."

Czinczar said, "I am a great proponent of the limited objective—provided the enemy concurs."

"Thirdly," said Clane, "we will not operate on the basis that half the population, or three quarters of it, is expendable. Leaders with such notions are criminally irresponsible."

Czinczar laughed, harshly. "A good military man accepts the potentialities of his situation. He makes what sacrifices are necessary. Since the alternative in this situation is utter disaster, then the sacrifice of three quarters *or more* of the population is not something that is in the control of the individual leader."

Clane said, "I am sure that I can trust even Lilidel to maintain herself within those elastic limitations. And now"—his tone changed—"before I make my fourth point, I want you to examine this part of the weapon control board." He indicated a section which they had not yet inspected.

Czinczar gave him a sharp look, and then settled down into one of the chairs. His first touch on a dial brought a picture onto a large screen on the wall in front of him. He frowned at a scene in space.

"A window?" he asked doubtfully.

Clane urged, "Go on."

The barbarian moved quickly from instrument to instrument. He grew abruptly tense when he came to those that showed the inside of the ship. In silence, he adjusted more dials, and watched the scenes that unfolded on the plates, and listened to the dialogue that came from concealed loud speakers.

People talking—in their rooms, along corridors, in the great community kitchens. Talking, unaware that they were being observed. Those all-seeing viewers peered in at lovers, and at the headquarters of Czinczar in the barbarian section of the ship. They showed the preparations that had been made by the barbarians for their assault. Everywhere, the evidence was brought to light.

At last, he seemed to have enough. He shut off the instrument he had been manipulating, and sat for nearly a minute with his back to Clane. Finally, he stood up, turned, and gazed at Clane with steady eyes. "What is your fourth point?" he asked.

Clane stared at him, suddenly gloomy. Because he was back on the childish level. In spite of his desire to raise the entire undertaking to a plane where it was above politics, above the need for force, inexorably it had sunk to that level. And now, he had no recourse but to act accordingly. He said:

"Very simple. We are on our way to another star. In my egocentric fashion, I have somehow entrenched

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myself in a position of command. So long as I am in that position, the journey continues. If I should find my control seriously threatened, I would be reluctantly compelled to tamper with the 'protective' machine on a level where it might damage any conspirators. Do I make myself clear?"

The barbarian stared at him with icy hostility. "Perfectly," he said.

He turned with a shrug. "Let us proceed with the inspection."

There was no further discussion. So far as Clane was concerned, it was a defeat for both of them.

XIII.

One year and eighteen days went by. The giant ship approached the end of its journey.

Twin planets, like two large moons, swam in the blackness ahead. It seemed clear from their size and their distance from each other—they looked about the same diameter—that they revolved one around the other, and that the two of them together followed an eccentric orbit around the hot blue star that was their sun.

The *Solar Star* approached them on a line almost equidistant from each planet. Ranking technical officers—both barbarian and Linnan—gathered in the viewing room. From where he stood near Czinczar, Clane could hear the comments.

"Undoubtedly, both have atmospheres."

"I can see continents and oceans on both of them."

"Look, that must be a mountain. See the shadow it casts."

Clane listened silently. Most of the remarks confirmed his own impressions. He had had a few other thoughts that no one had yet mentioned, but they would come to them, he felt sure.

He waited for additional comments, and presently, as he had expected, they came. A man said, "You'd think we'd have caught the glint of a ship before this. There must be a steady stream of traffic between the two planets."

Another man said, "I've been watching the dark areas of the right side of each planet, where its night now. I have yet to see the lights of a city."

The murmur of conversation ended abruptly. More than a dozen pairs of eyes turned to stare at Clane. The mutation smiled faintly, and turned to Czinczar.

"They're expecting me to guarantee them that we'll find human beings down there," he murmured in a low, amused tone. The barbarian leader shrugged coldly.

Clane faced his mixed, partly hostile staff. "Gentlemen," he said, "consider the following possibilities. Cities are vulnerable to the aliens; therefore there are no cities. It is much too soon to say that there is no periodic traffic between the two planets."

He walked over and made some adjustments on the auxiliary steering gear. The ship began to turn gradually in its course. Unmistak-

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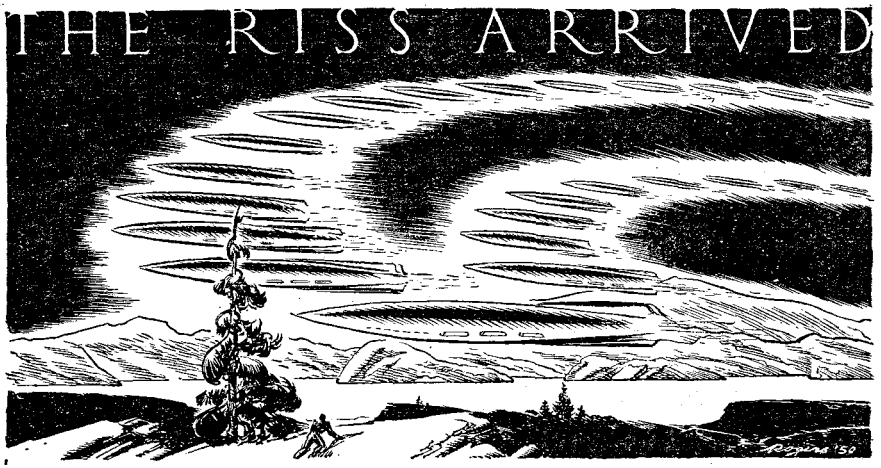

ably it headed for the planet that had been to their right a few moments before.

No one made any comment on the choice. One planet of these twins seemed as good as the other—especially as both could be visited in a matter of days by this tremendously swift ship.

The ship entered the atmosphere of Twin One, as someone suggested they call it, at a sedate speed. On Clane's star map, the two planets had names of their own—Outland and Inland—but the mutation did not mention the fact. The machine sped down toward sea level, and gradually straightened its course until it was moving along about three miles above a hilly wilderness that glinted with streams. As far as the eye could see there was forest or green meadow.

The men looked at each other. Clane walked over to Czinczar and, standing beside him, stared somberly down at the virgin land below. Czinczar spoke first, "It's too bad the aliens didn't find this planet. They could have it without a fight."

Clane laughed abruptly. It was a curiously harsh sound, that startled him. "Czinczar," he said after a moment, "there won't be any fight on Earth either unless the inhabitants of Twin One or Twin Two can provide us with superior weapons."

The barbarian said nothing. He must have sensed something of Clane's intense disappointment.

Somebody shouted, "There's a village!"

Clane counted nineteen houses set rather widely apart, and then a sprinkling of houses even farther from each other. About a hundred acres of trees evenly spaced suggested an orchard, and there were fields of green stuff.

He saw no moving dots which, at three miles, was not too surprising.

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Human beings did not show up well from a height.

They were past. The houses blurred into the mist behind them, but their existence had already communicated a warmth of excitement to the men in the viewing room. A babble of conversation broke out.

Clane said to Czinczar: "Suppose that this planet was inhabited by an agricultural society. With an army no larger than the one aboard, we could take control. Then, even if we failed to find weapons to stop the invaders, we could have a nucleus of civilization here."

Czinczar maintained a sour silence, and the two men stood without speaking for a long moment. Then Clane said: "Let's see what we find below. Everything may be different than it seems to be."

He changed the subject. "How do you think we should approach them?"

They decided to go in force into several villages. There *had* been several but now the largest was composed of twenty-eight houses, with a scattering of others in the vicinity. It was agreed that individual spies could not possibly infiltrate into such small groups. The individual spy was fine for cities like Linn, where foreigners arrived daily from all parts of the solar system. Here, any new man would be regarded as a stranger. There would very likely be language difficulties so serious as to prevent immediate communication.

Only a force large enough to handle opposition or hostility would be in a position to obtain important information.

The decision made, Clane commanded, "Six patrol vessels will leave immediately. Three Europan, three Linnan." He added, "Good luck."

Groups of men had been training for such expeditions for many months.

As Clane watched them prepare to depart, he said: "I would suggest that we all come back here in four hours. At that time we may have a report."

Clane was back in the view room a few minutes before the time set. He arrived in a room that buzzed with excitement, and it took several minutes to realize what had happened. All except one of the patrol commanders had reported back, and something was wrong.

Quickly, he brought order out of chaos. "One by one," he said sharply, "make your reports." He turned to Czinczar, "One of your men first." The barbarian nodded to one of his patrol leaders.

The officer began unhappily, "We found everything as might be expected in a small rural community. They were human beings, all right, and they seemed simple enough, very like our own people. As Lord Clane instructed, we took no hostile action, simply came down and looked around. Everybody was friendly. There were no language problems at all, although we did most of the talking at first. As soon as they real-

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ized what we wanted, a man and a woman showed us around. The houses were of simple construction, a little better furnished than we might have expected, but no machinery that we could see.

"Here's what we learned. This planet is called Outland, and its companion Inland. One of the women said she had a sister living on Inland, and she admitted that she visited there occasionally, but I couldn't find out where the spaceships took off. The twin planets are very similar, and life is exclusively farm or village. The name Earth, or Linn, or solar system seemed to be completely unfamiliar to them.

"Naturally, we were beginning to relax a bit. You know what our men are like, high-spirited, and with an eye for a good-looking woman."

The man paused; and Clane glanced quickly at Czinczar to see how the leader would respond to that. The ability of the barbarian leader to control his men had always fascinated Clane. Now, as he watched, Czinczar, slowly and deliberately, winked. It was a startling acceptance of a coarse innuendo by a man who was normally without crudeness. But the result was immediately evident. The officer brightened. Enthusiasm came into his voice.

"Roodge," he said, "is quite a man in his own way. He picked up one of the younger women and carried her off into the bushes. She giggled, and didn't make any fuss, so I decided not to interfere."

"What happened then?"

"I watched the reaction of the other people. They were quite unconcerned. Mind you, I should have known that something was wrong when Roodge came back in less than a minute with a funny look on his face. I figured the girl had got away from him, but I said nothing because I didn't want the men laughing at him. And the silly fool didn't help matters any by keeping his mouth shut."

Czinczar was patient. "Go on."

The reporting officer continued in a doleful tone. "We asked more questions. I wondered if they knew about the aliens. When I described them, one of the men said, 'Oh, you mean the Riss.' Just like that. He went on to say that they occasionally traded with the Riss."

Clane broke in. "They trade with them?" he said sharply.

The officer turned to him, glanced back at Czinczar who nodded as much as to say it was all right for him to answer the question, and then faced Clane again. "That's what he said, your excellency. And I'm sure they recognized the description."

Clane was astounded. For a moment, he abandoned his questioning, and paced up and down before the officer. He stopped finally, and gazed at the group as a whole.

"But that would mean," he said in a puzzled voice, "that they've found some method of neutralizing these Riss. Why would the Riss let them alone and yet come to the solar

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system and refuse even to communicate with human beings there?" He shook his head. "I refuse to believe that they have really solved the problem of Riss aggression. That problem will never be solved by the human beings of one planet alone."

No one said anything. And presently Clane once again faced the patrol commander. "Continue," he said curtly.

"I knew you'd want to question these people personally," said the officer, "so I suggested that a woman and a man come along and have a look at the ship. I figured it'd be better to take them by persuasion than by force, though naturally if the first didn't work, then it'd have to be the other."

"Naturally."

"Well, our guides agreed to come, made no objection, and in fact seemed kind of interested in a child-like way—the way our own people might have been."

"Go on, go on."

"We started up. On the way, Roodge edged over to the woman and before I realized what was up made a pass at her. At least, that's the way I heard it. I didn't see the incident. I heard the uproar. When I loooked around, the man and woman were gone."

Clane looked at him blankly for a moment; and then, "How high up were you?" he asked.

"About two miles."

"Did you look down over the edge? Of the patrol boat, I mean."

"Within a few seconds. I thought they might have—jumped."

"Or been pushed?" Czinczar added.

The officer nodded. "Knowing the quick impulses of our simple people, yes, I thought of that."

It seemed to Clane that the remark was well phrased. The "quick" impulses of the simple folk in Czinczar's part of the ship had resulted during the voyage in the murder of twelve hundred and ninety men and three hundred and seventy-two women. In each case Czinczar's judges had sentenced the killer to a hundred lashes to be given at the rate of ten every day for ten days. In the beginning it had seemed to Clane that a few hangings would act as deterrent, but statistics had proved that only three men so whipped had become second offenders. The lashes apparently penetrated deep, but only into the hides of those who received them.

The officer was finishing his account. "Well, that's about all, sir. Except that Roodge admitted to me that his first girl had vanished just like the second."

Each of the other four patrol leaders reported experiences that were similar in substance, varying only in details. All had tried to bring back guests. In two cases the invitations had been rejected, and they had attempted to imprison a man and a woman. One couple had gone up about a mile and then apparently tired of the "game" and vanished. The third officer described how a Roodge-type man of his troop had

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offended the woman he'd tried to bring. The fourth commander had actually succeeded in getting his "prisoners" aboard. He sounded aggrieved.

"I thought they got themselves lost in the crowd, and my men are still looking for them. But I guess they took one look at the swarm of people in the corridors, and went home."

His words completed the accounts. With only one patrol still to report, the picture seemed fairly complete.

Clane was frowning over the unexplained details when there was a commotion at the door. The sixth patrol commander burst into the room. Even at a distance, he looked pale and agitated.

"Out of the way," he cried to the officers around the door. "Quick, I have important news."

A path was made for him, and he raced along it, and paused in front of Clane. "Excellency," he gasped, "I was questioning the villagers I was assigned to when one of them mentioned that there was a Riss ship like ours—he definitely said like ours—just outside the atmosphere of the other planet. Inland, he called it."

Clane nodded casually. At such moments as this he felt at his best. He walked over Czinczar, and said: "I think we should disembark all aboard except our fighting crews, landings to be made on the night side in widely separated uninhabited areas. After a year in confined quarters, everybody needs a chance to get down to a planet again."

"What about the Riss ship?" Czinczar asked.

"Nothing. We remain alert, but avoid battle." His eyes flashed with abrupt excitement. He said tensely: "Czinczar, there's something here for us. I foresee difficulties. We've got to make the most sustained and concentrated effort of our existence. I'm going to make a personal investigation of the village life below."

Czinczar was frowning, but he nodded presently. "In connection with being alert," he said, "how about some of my officers staying on duty up here along with your own? There would be a certain rivalry which would make for wakefulness."

The high excitement in Clane died. He studied the barbarian leader thoughtfully. Finally, he nodded. "With certain precautions to prevent any attempt to take over the ship," he said, "that sounds reasonable."

They smiled at each other humorlessly, two men who understood each other.

XIV.

The landing was without incident. Clane stepped down to the grass, and paused to take a deep breath of air. It had an ever so slight acrid odor, and he guessed the presence of minute quantities of chlorine. This was unusual, considering that gas's natural proclivity for combining other substances.

It suggested the presence of a

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natural chlorine-producing chemical process.

What interested him was that the chlorine content might explain the faint over-all mistiness of the air. It even looked a little green, it seemed to him suddenly.

He laughed, and put it out of his mind.

The first house of the village stood about a hundred yards away. It was a single-story structure, rather sprawling, and made of wood.

His whole being quivered with eagerness. But he held himself calm. He spent the day on a folding chair near the boat. He paid no direct attention to the Outlanders. Whenever he noticed an individual or a group doing anything, he made a note of it in his journal. He established a north-south-east-west orientation for the village, and recorded the comings and going of the villagers.

The air grew cooler as night drew near, but he merely slipped on a coat and maintained his watch. Lights came on in the houses. They were too bright to be candles or oil lamps, but he couldn't decide from his distance exactly what they were.

Starting about two hours after dark, the lights winked out one by one. Soon, the village was in total darkness. Clane wrote down, "They seem to be unafraid. There's not even a watchman posted."

He tested that. Accompanied by two husky barbarians, he spent two hours wandering among the buildings. The blackness was complete. There was no sound except the pad of their own feet, and the occasional grunt of one of the soldiers. The movements and the sounds didn't seem to disturb the villagers. No one came out to investigate.

Clane retreated at last to the boat, and entered his closed cabin. In bed he read his day's journal, and heard the vague noises of the soldiers bedding down outside in their sleeping bags. And then, as the silence lengthened, he clicked off the boat's electric lights.

He slept uneasily, tensely aware of his purpose and his need, desperate to take action. He awakened at dawn, ate a hasty breakfast, and then once more settled down to observe the passing show. A woman walked by. She gazed stolidly at the men around the boat, giggled as one of the soldiers whistled at her, and then was lost to sight among the trees.

Some men, laughing and talking, went off to the orchard to the north, and picked fruit. Clane could see them on their ladders filling small pails. About noon, struck by a discrepancy in their actions, he left the vicinity of the boat, and moved nearer to them.

His arrival was unfortunately timed. As he came up, the men as of one accord put down their pails, and headed back toward the village.

To his question, one of them replied, "Lunch!"

They all nodded in a friendly fashion, and walked off, leaving Clane alone in the orchard. He

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strode to the nearest pail, and as he had half expected, it was empty.

All the pails were empty.

The great blue sun was directly overhead. The air was warm and pleasant, but not hot. A mild breeze was blowing, and there was the feel of timeless summer in the quiet peacefulness around him.

But the pails were empty.

Clane spent some forty minutes exploring the orchard. And there was no bin anywhere, no place where the fruit could have been carried. Baffled, he climbed one of the ladders, and carefully filled a pail.

He was wary, though he didn't know what he expected would happen. Nothing happened. The pail held twenty-one of the golden fruits. And that was the trouble. It held them. Clane took the fruit and the container back to the lift-boat, set it down on the ground, and began a systematic investigation.

He found nothing unusual. No gadgets, no buttons, no levers, no attachments of any kind. The pail seemed to be an ordinary metal container, and at the moment it contained substantial, non-disappearing fruit. He took up one of the yellow things, and bit into it. It tasted deliciously sweet and juicy, but the flavor was unfamiliar.

He was eating it thoughtfully, when one of the men came for the pail.

"You want the fruit?" the villager asked. He was obviously prepared to have him keep it.

Clane began slowly to take out the fruit, one at a time. As he did so, he studied the other. The fellow was dressed in rough slacks and an open-necked shirt. He was clean-shaven, and he looked washed. He seemed about thirty-five.

Clane paused in his manipulations. "What's your name?" he asked.

The man grinned. "Marden."

"Good name," said Clane.

Marden looked pleased. Then he grew serious. "But I must have the pail," he said. "More picking to do."

Clane took another fruit from the container, then asked deliberately: "Why do you pick fruit?"

Marden shrugged. "Everybody has to do his share."

"Why?"

Marden frowned at Clane. He looked for a moment as if he wasn't sure that he had heard correctly. "That isn't a very smart question," he said at last.

Clane assumed ruefully that the story would now spread that a stupid man from the ship was asking silly questions. It couldn't be helped. "Why," he persisted, "do you feel that you have to work? Why not let others work, and you just lie around."

"And not do my share?" The shock in Marden's tone was unmistakable. His outer defenses were penetrated. "But then I wouldn't have a right to the food."

"Would anyone stop you from eating?"

"N-no."

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"Would anyone punish you?"

"Punish?" Marden looked puzzled. His face cleared. "You mean, would anyone be angry with me?"

Clane let that go. He had his man on the run. He was getting a basic philosophy of life here, one so ingrained that the people involved were not even aware that there could be any other attitude.

"Look at me," he said. He pointed up at the ship which was a blur in the sky. "I own part of that."

"You live there?" said Marden.

Clane ignored the misunderstanding. "And look at me down here," he said. "I sit all day in this chair, and do nothing."

"You work with that thing." The villager pointed at Clane's journal lying on the ground.

"That's not work. I do that for my own amusement." Clane was feeling just a little baffled himself. He said hastily. "When I'm hungry, do I do anything myself? No. I have these men bring me something to eat. Isn't that much better than having to do it yourself?"

Marden said: "You went out into the garden, and picked your own fruit."

"I picked *your* fruit," said Clane.

"But you picked it with your own hands," said the man triumphantly.

Clane bit his lip. "I didn't have to do that," he explained patiently. "I was curious about what you did with the fruit you picked."

He kept his voice deliberately casual, as he asked the next question. "What did you do with it?" he said.

Marden seemed puzzled for a moment, and then he nodded his understanding. "You mean the fruit we picked. We sent that to Inland this time." He pointed at the massive planet just coming up over the eastern horizon. "They've had a poor crop in—" He named a locality the name for which Clane didn't catch. Then he nodded with an air of "Is-that-all-you-wanted-to-know?" and picked up the pail.

"Want the rest of this fruit?" he asked.

Clane shook his head.

Marden smiled cheerfully and, pail in hand, walked off briskly. "Got to get to work," he called over his shoulder.

Clane let him go about twenty feet; and then called after him, "Wait a minute!"

He climbed hastily to his feet, and as the wondering Marden turned, he walked over to him. There was something about the way the man was swinging the pail that—

As he came up, he saw that he had not been mistaken. There had been about eight of the fruit in the bottom of the pail. They were gone.

Without another word, Clane returned to his chair.

The afternoon dragged. Clane looked up along the rolling hills to the west with their bright green garments and their endless pink flowers. The scene was idyllic, but he had no patience. He was a man with a pur-

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pose; and he was beginning to realize his problem.

There was a solution here; and yet already he had the conviction that the human beings of Outland and Inland were obstacles as great or greater than he had found in Linn.

Unhappily, he bent down and picked a pink flower, one of the scores that grew all around him. Without looking at it, he broke it into little pieces, which he dropped absently to the ground.

A faint odor of chlorine irritated his nostrils. Clane glanced down at the broken pieces of flower, and then sniffed his fingers where the juice had squeezed from the flower's stem.

The chlorine was unmistakbly present.

He made a note of it in his journal, stimulated. The potentialities were dazzling, and yet—he shook his head. It was not the answer.

Night came. As soon as the lights were on in all the houses, he ate his own evening meal. And then, accompanied by two of the barbarians, he started his rounds. The first window that he peered in showed nine people sitting around on couches and chairs talking to each other with considerable animation.

It seemed an unusual number of occupants for that house. Clane thought: "Visitors from Inland?" It was not, he realized seriously, impossible.

From where he stood, he was unable to see the source of the room's light. He moved around to the window on the far side. Just for a moment, then, he thought of the light as something that hung down from the ceiling.

His eyes adjusted swiftly to the fantastic reality. There was no cord and no transparent container. This light had no resemblance to the ones aboard the Riss ship.

It hung in midair, and it glowed with a fiery brilliance.

He tried to think of it as an atomic light. But the atomic lights that he had worked with needed containers.

There was nothing like that here. The light hung near the ceiling, a tiny globe of brightness. He guessed its diameter at three inches.

He moved from house to house. In one place a man was reading with the light shining over his shoulder. In another it hovered over a woman who was washing. As he watched, she took the clothes out of the tub, shook the tub as if she was rinsing it, and then a moment later put the clothes back into steaming water.

Clane couldn't be sure, but he suspected that she had emptied the dirty water from the tub, refilled it with scalding water—possibly from a hot spring somewhere—and all in the space of a minute resumed her task.

He couldn't help wondering what she did with the clothing when she finished. Did she step "through" to where the sun was shining, hang up her clothes, and have them beautifully sun-dried when she woke up in the morning?

He was prepared to believe that that was exactly what would happen.

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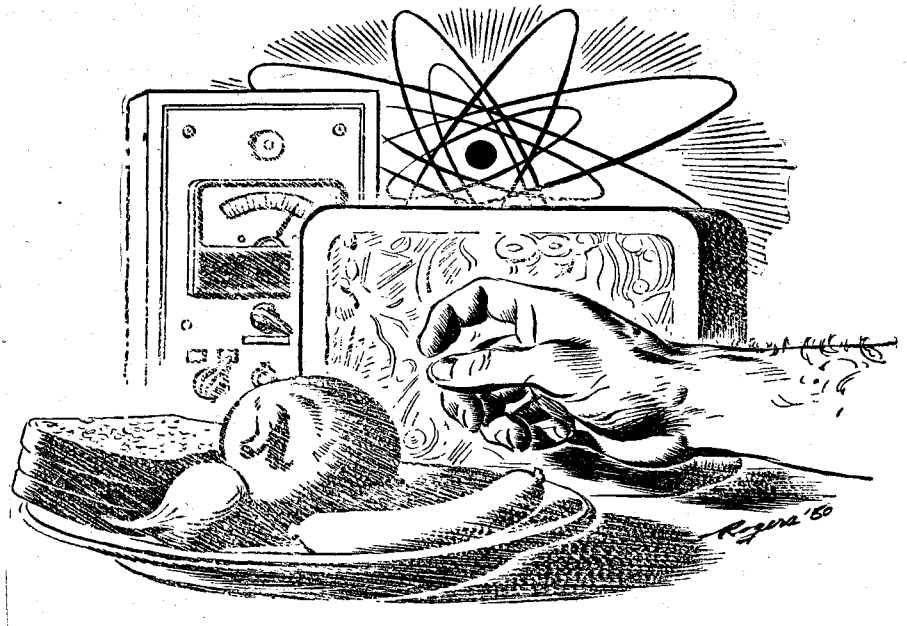

She seemed in no hurry, so he moved on. He came presently to the home of Marden. He walked to the door slowly, thinking: "These people are friendly, and without guile. They have no government. There's no intrigue. Here, if anywhere, an honest approach will win us what we want."

Oddly, even as he knocked on the door, it seemed to him there was a flaw in his reasoning.

It made him abruptly tense again.

XV.

Marden opened the door. He looked relaxed and easygoing, and there was no doubt about his good nature, for he did not hesitate. He smiled and said in a friendly, half humorous tone:

"Ah, the man who does not work. Come in."

There was a suggestion of tolerant superiority in the comment, but Clane was not offended. He paused in the center of the room, and glanced around expectantly. When he had looked through the window, a woman had been present. Now, there was no sign of her.

From behind him, Marden said: "When my wife heard your knock, she went visiting."

Clane turned. "She knew it was me?" he asked.

Marden nodded, and said: "Naturally." He added, "And, of course, she saw you at the window."

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The words were simply spoken, but their frankness was disarmingly devastating. Clane had a momentary picture of himself as these villagers must see him. A slim, priestly peeping Tom who prowled around their homes in the dead of night and who asked stupid questions.

It was not pleasant picture, and it seemed to him that his best reply was to be equally frank. He said: "Marden, we're puzzled by you people. May I sit down and talk to you?"

Marden silently indicated a chair. Clane sank into it and sat frowning for a moment, organizing his thoughts. He looked up finally.

"We're from Earth," he said. "We're from the planet where all human beings originally came from, including your people."

Marden looked at him. His gaze was polite. He seemed to be saying, "If you say so, that's the way it must have been. I don't have to believe you, of course."

Clane said quietly: "Do you believe that?"

Marden smiled. "Nobody here remembers such a connection; but it may be as you say."

"Do you have a written history ?"

The villager hesitated. "It begins about three hundred years ago. Beyond that is blankness."

Clane said: "We're both human beings. We speak the same language. It seems logical, doesn't it?"

Marden said: "Oh, language." He laughed.

Clane studied him, puzzled. He recognized that the villager could not accept an abstract idea which did not fit in with his previous concepts.

Clane said: "This method you have of moving yourself and your goods from Outland to Inland, and anywhere else on either planet—have you always been able to do that?"

"Why, of course. It's the best way."

"How do you do it?"

"Why, we just—" Marden stopped, and a curious blankness came over his face; he finished weakly—"do it."

That was what Clane had thought. Aloud, he said: "Marden, I can't do it, and I'd like to be able to. Can you explain it to me simply?"

The man shook his head. "It's not something you explain. You just do it."

"But when did you learn? How old were you the first time you did it?"

"About nine."

"Why couldn't you do it before then?"

"I was too young. I hadn't had time to learn it."

"Who taught you?"

"Oh, my parents."

"How did they teach you?"

"It wasn't exactly teaching." Marden looked unhappy. "I just did what they did. It's really very simple."

Clane had no doubt of it, since they could all do it, apparently without even thinking about it. He eyed the other anxiously, and realized

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that he was pressing the man harder than appeared on the surface. Marden had never had thoughts like this before, and he didn't like them.

Hastily, Clane changed the subject. There was a far more vital question to be asked, a question that struck to the very root of all this.

He asked it. "Marden," he said, "why don't the Riss take over the planets Outland and Inland?"

He explained about the attack on Earth, the use of atomic bombs, the refusal to communicate, and the possibility of future danger. As he described what had happened, he watched the villager for reactions. And saw with disappointment that the man was not capable of grasping the picture as a whole.

He had a mental picture then that shook him. Suppose these people had the answer to the Riss menace. Suppose that here on this quiet planet was all that men of Earth would need to win their deadly war.

And couldn't get it because—

Marden said: "The Riss don't bother us. Why should they?"

"There must be a reason for that," said Clane. He continued urgently, "Marden, we've got to find out what that reason is. Even for you, that's important. Something is holding them back. Until you know what it is, you can never really feel secure."

Marden shrugged. He had the bored look of a man who had jumped to a surface conclusion about something that did not fit into his own ideas. He said tolerantly: "You Earth people are not very smart, asking all these silly questions."

And that was actually the end of the interview. Clane remained many minutes longer, but Marden no longer took him seriously. His answers were polite and meaningless.

Yes, they traded with the Riss. It was the natural thing to do. The twin planets gave them their food surplus, and in return they took what they wanted of the articles aboard the Riss ship. The Riss didn't really have very much that the Outlanders and Inlanders wanted. But there was always something. Little things—like this.

He got up, and brought Clane a machine-made plastic ornament, the figure of an animal. It was cheaply made, worth a few sesterces at most. Clane examined it, nonplussed. He was trying to imagine two planets giving their food surplus to nonhumans in return for useless trinkets. It didn't explain why the Riss hadn't taken over the system, but for the first time he could understand the contempt which the aliens must feel for human beings.

He took his leave, finally, conscious that he had ruined himself with Marden, and that his next move must be through someone else.

He radioed Czinczar, requesting him to come down. In spite of his sense of urgency, he cautiously suggested that the barbarian wait until twilight of the following evening. Clane slept somewhat easier that night, but he was awake at dawn. He

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spent the day in the folding chair, analyzing the possibilities of the situation. It was one of the longest days of his life.

Czinczar came down shortly before dusk. He brought two of his secretaries, and he listened to Clane's account in silence. The mutation was intent, and it was several minutes before he noticed the barbarian leader's satirical expression. Czinczar said:

"Your excellency, are you suggesting that we trick this Outlander?"

Clane was still concentrated on his own purposes. He began, "It's a matter of taking into account certain things that have already happened, and the simple character of Mard—"

He stopped. He heard Czinczar say, "Exactly. I approve of your analysis. I think the idea is excellent." Ever so slightly, Clane shook his head, rejecting the cynical overtones of the other's praise. But he was startled, too.

For nearly twenty-four hours he had planned the pattern of this night's interview. And not once had it struck him that he was playing his old, astute role. There was cunning in what he had in mind, based on a sharp understanding of the difficulty of communicating with these Outlanders. Based, also, on his conviction that there was no time to waste.

"Shall we proceed?" asked Czinczar.

Silently, Clane led the way. He decided not to be ashamed of his failure to live up to the ideals which he considered vital to final success. After all, he was operating in a new environment.

But it mustn't happen again.

Marden received them graciously. His eyes widened a little as he heard Czinczar's wonderful golden voice, and thereafter he listened with a profound respect whenever the barbarian leader spoke. The reaction was in line with Clane's thinking. One of his personal problems on Earth had been that he was of slight build, that because of certain mutational differences in his physical structure, he wore the drab concealing clothing of a priest of the atom gods. What strength he showed was intellectual, and that did not impress other people until they realized its implications. Which always took time.

Not once during the entire evening did Marden intimate even indirectly that his interrogator was asking silly questions.

Czinczar began by praising the two planets and their peoples. He called Outland and Inland two examples of Paradise. He eulogized the economic system. The people were wonderful, the most highly civilized he had ever run into. Here things were done as they should be done. Here life was lived as people dreamed of living it. Here was intelligence carried to the uttermost pinnacle of wisdom.

Clane listened gloomily. He had to admit it was well done. Czinczar was talking to the villager as if he was a primitive savage. There ap-

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peared to be no doubt of it. The villager was taking in every word of praise with evident delight.

Czinczar said: "We are like children at your feet, Marden, eager to learn, respectful, anxious to begin the long climb to the heights where you and the people of the twin planets live in a glorious harmony. We realize that the goal is possibly unattainable in our own lifetime. But we hope that our children may share the perfection with your children.

"Perhaps you will give us a little of your time this evening, and tell us at your own discretion a little of what you believe in, of the thoughts that go through your mind, the hopes you have. Tell us, do you have a national symbol, a flag, a plant of some kind, a coat of arms?"

He paused, and abruptly sat down on the floor, motioning the two secretaries and Clane to do the same. It was an unrehearsed action, but Clane obliged promptly. Czinczar went on:

"While you relax in that chair, Marden, we sit at your feet and listen respectfully."

Marden walked over, and sat down. He shifted uneasily and then, as if he had suddenly come to a decision, leaned back against the cushions. He was obviously embarrassed by the godlike role that had been thrust upon him, but it was apparent that he could see reasons for accepting it.

"I had not thought of this before," he said, "but it is true; I can see that now."

He added, "I do not quite know what you mean by 'flag' or a plant as a national symbol. I can sense part of the idea but—" He hesitated.

Czinczar said: "Do you have seasons?"

"Yes."

"There are times when the trees and plants bloom, and times when the leaves fall off?"

"That happens to some of them."

"Do you have a rainy season?"

"Yes."

"What do you call it?"

"Winter."

"Do you celebrate the coming of the rain?"

Marden's face lighted with understanding. "Oh, no. The ending of it, not the beginning. The appearance of the first chlorodel anywhere on the planets. We have dancing then, and feasting."

Czinczar nodded casually. "Is that an old custom, or a new one?" He added, "All this may seem unimportant to you, but we are so anxious to catch the spirit of your idyllic existence."

"It's a very old custom," said Marden.

He shrugged regretfully. "But we have nothing such as you mentioned. No national symbols."

As the evening progressed, the villager seemed equally unaware that he was actually answering questions. He took the customs for granted. They were not symbols to him. That was the way things *were*.

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It was all so natural and so universally practiced. The possibility that other peoples might have other customs simply did not penetrate.

And so, it was established beyond reasonable doubt that the Outlander and Inlander symbol of life was the pink chlorine flower, chlorodel. That each year people visited the underground caverns. That they put a little square box on the table when they ate, and tapped on it when they didn't care to eat much. That they had always given their spare food to the Riss.

One point that came out was especially interesting. There were old, buried cities, Marden admitted. Or rather, ruins of cities. It was years since anything of importance had been found in any of them.

Czinczar talked around that cautiously for a few moments, and then looked at Clane questioningly. That too, was part of their previous arrangement. Clane nodded.

The barbarian leader climbed to his feet. He bowed to the villager. "Oh, noble man of Outland, we have a great favor to ask of you. Would you transport us by your wonderful method to such a city on a hemisphere of this planet where the sun is shining?"

"Now?" said Marden. His voice was casual. He didn't sound opposed to the idea.

"We need not stay long. We just wish to look."

Marden stood up. He was frowning thoughtfully. "Let me see—which city? Oh, I know—where the ship is."

Clane had been tensing himself against he knew not what. He was annoyed to realize that he was just a little anxious. And then—

Afterwards, he tried to analyze what happened. There was a flash, a roundness of light. It was gone so swiftly that he couldn't be sure of just what he had seen. And then, all around was the brightness of day. Almost directly overhead hung the blue sun of the twin planets.

They were standing in the middle of a wilderness of broken stones and twisted metal. As far as the eye could see was a growth of shrubbery and trees. As Clane watched—that was his role; to pretend to be a subordinate—Czinczar walked over to a section of concrete piling and kicked at a thick piece of wood that lay on the ground.

The hard boot made a hollow sound in that silence. But the wood did not budge. It was firmly embedded in the soil.

Czinczar came back to Marden. "Has any digging been done in this or other cities recently?"

Marden looked surprised. "Who would want to dig in such stuff as this?"

"Of course," said Czinczar quickly. He hesitated. He seemed about to say something else, and then in a curious fashion, he stiffened. His head tilted sharply. Clane followed his gaze, and was surprised to see the *Solar Star* overhead.

That is, for a split instant, he

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thought it was their own ship.

He realized the truth. He said, "The Riss!"

From nearby, Marden said mildly: "Oh, yes, I thought you might be interested in seeing it, which is why I brought you to this city. The Riss were very interested when we told them you were here in a ship like theirs. They decided to come to Outland to have a look. From something I sensed in your attitude—it seemed to me you might like to see their ship first."

There was a moment, then, when even Clane was disconcerted. Czinczar spoke first. He turned calmly to the Outlander. "We accept your judgment about the uselessness of looking further at these ruins. Let's go back to your house."

Clane caught a final glimpse of the Riss battleship. It was disappearing into the mists above the eastern horizon.

He presumed that it was heading unerringly toward the *Solar Star*.

XVI.

As he had done for the journey from Marden's house to the ruins of the ancient Outland city, Clane unconsciously tensed himself for the return trip. Once more, there was the flashing ball of light. This time it seemed even briefer than before.

Then he was in Marden's living room. At the door Clane, who was the last to leave the house, paused. He asked: "Marden, I'm curious. Why did you tell the Riss that we were here?"

Marden looked surprised, and then the look came into his face. Another foolish question, his expression intimated. He said: "Sooner or later, they ask us if anything is happening. Naturally, we tell them."

Clane said: "Do they speak your language, or do you speak theirs?"

The Outlander laughed. "You keep talking about language," he said. He shrugged. "We and the Riss understand each other, that's all."

The others were moving off into the darkness. Czinczar had paused, and was looking back. Clane stayed where he was. "Do you go aboard the Riss ship, or do they come to the ground?" he asked.

He waited stiffly. There was a purpose in his mind that vibrated with cunning. But he was too angry to be ashamed. The Outlanders' action in telling the Riss of the presence of the *Solar Star* had shocked him. It set the pattern now for his deadly plan.

Marden said: "We go aboard. They have some kind of a round thing which they point at us, and then it's safe."

Clane said deliberately: "How many of your people have had this thing pointed at them?"

"Oh, a few hundred." He started to close the door. "Bedtime," he said.

Clane was beginning to cool off. It struck him that the whole problem needed thinking out. Perhaps he

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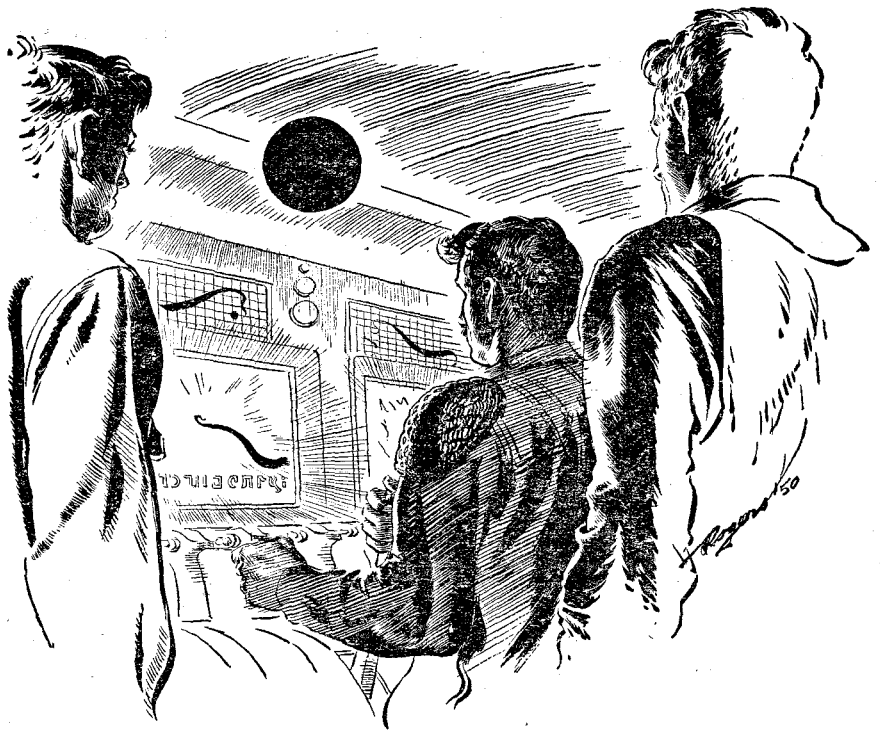

was being hasty in judging these people.

It would serve no useful purpose to risk attacking the enemy ship.

He accepted Marden's dismissal. A few minutes later, he was in a liftboat heading back to his own section of the *Solar Star*. Presently, the ship was moving at a sharp slant up the umbral cone of the nightside of Outland.

A messenger arrived from Czinczar's headquarters. "Great Czinczar requests an interview."

Clane said slowly: "Tell his excellency that I should like him to prepare a written interpretation of what we found out from Marden."

He was getting ready for bed some time later when a second messenger arrived with a written request.

Dear Lord Clane:
It is time to discuss our next move.
Czinczar.

The trouble, Clane thought grimly, was that he had no plans. There was a great secret here; but it was not to be had by any method he could think of. The human beings of the twin planets could possibly save

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the race. And yet he was already convinced they wouldn't.

They refused to recognize that there was a problem. Pressed too hard, they got angry, the neurotic anger of someone whose basic attitudes are being attacked. Nor was there such a thing as forcing them. Their method of transportation nullified all the old techniques of persuasion by threat and violence. That left cunning.

Which brought him back to his first thought: He had no real plans. He wrote:

Your excellency:
I should like to sleep over this matter.
Clane.

He sealed it, dismissed the messenger, and went to bed. At first he couldn't sleep. He kept tossing and turning, and once in a long while he dozed, only to jerk awake with a start. His conscience burdened him. Unless he could think of something, the trip was a failure. He was up against the stone wall of one fact. Neither Marden nor his compatriots could even begin to understand what was wanted.

That was especially baffling because, from all indications, they could read minds.

He slept finally. In the morning, he dictated a note to Czinczar:

Your excellency:
My idea is that we should exchange views and information before we meet to discuss future plans. Clane.

The answer to that was:

Dear Lord Clane:
I have the feeling that you are evading this discussion because you have no plans. However, since the long journey has now been made, let us by all means consider the possibilities. Will you please name for me the actual information which you think we have obtained? Czinczar.

Dear Czinczar:
The chlorodel is the "national" flower, because it gives off a gas which makes the air unbreathable to the Riss.

The reference to knocking on a little box in the center of the table when they were not hungry probably dates back to the radioactivity period after the great war. The little box was a detector, and many a time they must have gone hungry because the instrument indicated the food was radioactive.

The annual visit to the caverns derives from the same period.

They give the Riss their surplus food without remembering that that must have started as a form of tribute to a conqueror. In this connection, I would say that only certain foods would be usable by the Riss because of their somewhat different chemical make-up. Clane.

Your excellency:
Do you seriously claim that the chlorodel can create an unbreathable atmosphere for the Riss? Then we have our answer. We need look no further. Let us hurry back to the solar system, and plant this flower until its perfume is diluted in every molecule of the air of every habitable planet or moon. Czinczar.

Clane sighed when he read that. The problem of the barbarian leader, pragmatist extraordinary, remained as difficult of solution as all the other riddles.

He ate breakfast while he considered his reply. He took the ship down near the atmosphere of the

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planet, and spent nearly an hour looking for the Riss battleship, without success. By the time he was satisfied that it was not in the vicinity of Marden's village, another note had arrived from Czinczar.

Dear Lord Clane:
Your failure to reply to my last letter indicates that you do not accept the implications of your discovery about the chlorodel. Let us meet at once and discuss this entire problem. Czinczar.

Clane wrote:

Dear Czinczar:
I am sorry to see you jumping at a solution which can have no meaning in the larger sense. The Riss-human struggle will not be resolved by the use of a defensive gas. If the Riss ever believed that a campaign was under way to poison the atmospheres of planets against them, they would take counter-measures. They could use radioactive poisons on a planetary scale, or some other gas development as inimical to man as the chlorodel seems to be to the Riss.

The fact that long ago the Outland-Inland Twins defended themselves in that way is not conclusive. The Riss could accept isolated activity. This would be especially true during the confusion that existed toward the end of the Riss-human war. By the time they discovered what the people of the Twins had done, the limited character of the action would be evident. The Riss would accordingly be in an exploratory frame of mind. Even as it was, they must have made threats so terrible that a tribute agreement was made.

I repeat, this is not a final answer. Far from it. In my earnest opinion, it would be the signal for an attempt to destroy the solar system. Clane.

Dear Lord Clane:
I am astounded by your purely intellectual approach to these matters. We defend our planets by any and every means at our disposal. Let us meet immediately to discuss the only course now open to us: to return to Earth with a shipload of chlorodel plants for replanting.
Czinczar.

Dear Lord Clane:
I have received no answer to my communication delivered three hours ago. Please let me hear from you. Czinczar.

Dear Lord Clane:
I am amazed that you have failed to reply to my last two notes. I realize of course that you have no answer, because what can our next move possibly be except return to Earth? The alternative would be to continue our blind search through space for another planet inhabited by human beings. Am I right in believing that the star map which brought us to Outland does not show any other stars as having habitable planets? Czinczar.

Dear Lord Clane:
This situation is now becoming ridiculous. Your failure to reply to my notes is a reflection on our relationship. If you do not answer this letter, I shall refuse to have any further communication with you.
Czinczar.

Lord Clane did not see that note or the previous ones until some time later. He was paying another visit to Marden.

The interview began unsatisfactorily. The place was bad. Marden was busy picking fruit when Clane stopped under the tree where he was working. He looked down, and he was visibly impatient with the "fool" who had been bothering him for so long now.

He said: "The Riss ship waited for about an hour. Then it moved

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on. I see this pleases you."

It did indeed. Clane said steadily: "After our trouble with the Riss, we have no desire to meet them. In our opinion they would attack us on sight."

Marden kept on picking fruit. "We have had no trouble with the Riss, ever."

Clane said: "Why should you? You give them everything you own."

Marden had evidently been doing some thinking about the previous conversation on that. He said coldly: "We do not keep from others what we do not need ourselves." He spoke tartly.

Clane said serenely: "So long as you keep down your population, learn nothing of science, and pay tribute, you will be left alone. All this, provided the chlorodel does not wither away. At that point, the Riss would land, and you would learn what their friendship was worth."

It was a dangerous comment. He made it because it was time such thoughts were circulated among these people. Nevertheless, Clane quickly changed the subject.

"Why didn't you tell us you could read minds?" he asked.

"You didn't ask," said Marden. "Besides—"

"Besides what?"

"It doesn't work well with you. You people don't think clearly."

"You mean, we think differently?"

Marden dismissed that. "There's only one way to think," he said impatiently. "I find that it's easier to use spoken language with you, and search your minds for the right word when I might otherwise be at a loss. All those who have dealt with you feel the same way." He seemed to think that settled the matter.

Clane said: "You don't really speak our language? You learn it by getting some of our thoughts as we speak?"

"Yes."

Clane nodded. Many things were becoming much clearer. Here was a human colony that had carried on to new heights of scientific development long after the connection between Earth and Outland was broken. The reasons for their subsequent decadence were probably intricate: Disruption of commerce with other man-inhabited planets. Destruction of tens of thousands of their own factories. Irreplaceable gaps in the ranks of their technicians. The deadly pressure of Riss threats. Inexorably, that combination had added up to the present static state.

Clane said: "Does the reading of minds have any relation to your method of transportation?"

Marden sounded surprised. "Why, of course. You learn them at the same time, though it takes longer."

He climbed down from the tree, carrying his pail. "All this time while you've been talking, there's been a question in the back of your mind. It's your main reason for this visit. I can't quite make it out, but if you will ask it, I'll answer as best I can, and then I can go to lunch."

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Clane took out his star map. "Have you ever seen one of these?"

Marden smiled. "At night, I look up into the sky, and there it is."

"Apart from that?"

"I have seen occasional thoughts about such maps in the minds of the Riss."

Clane held the map up for him. "Here is your sun," he said. He pointed. Then brought his finger down. "And here is ours. Can you use the knowledge in my mind about such things to orient yourself to this map, and point out to me which is the nearest Riss sun?"

There was a long silence. Marden studied the map. "It's hard," he sighed. "But I think it's this one."

Clane marked it with trembling fingers, then said huskily, "Marden, be as sure as you can. If you're wrong, and we go there, we will have wasted half a year or more. Millions of people may die."

"It's either this one or this one," said Marden. He pointed at a star about an inch from the other one."

Clane shook his head. That one's a hundred light-years, and this one about twenty."

"Then it's the close one. I have no impression of the distance being very great."

"Thank you," said Clane. "I'm sorry to have been such a nuisance."

Marden shrugged.

"Good-by," said Clane.

He turned and headed back to the liftboat.

XVII.

Back on the ship, he read Czinczar's letters with an unhappy sense of more trouble to come. He ate lunch, and then, bracing himself, invited the angry barbarian for a conference.

He included an apology in his letter. He explained where he had been, though not his purpose in visiting Marden.

That account he saved until Czinczar and he were alone together. When he had finished, the great man sat for a long time saying not a word. He seemed unutterably nonplussed. At last, he said in a mild tone: "You have no faith in the chlorodel plant?"

Clane said: "I see it as a weapon of last resort. We musn't use it till we are sure we understand all the possible repercussions."

Czinczar sighed. "Your action in producing the chlorodel as a weapon had decided me that this journey was worthwhile after all. Now you yourself devaluate it, and suggest that we extend our trip to take in the planets of another star."

He brought up one hand, as if he would use it somehow to make his protest more effective. He seemed to realize the futility of that, for he spoke again.

"I confess it baffles me. What can you possibly hope to gain by going to a Riss planet?"

Clane said earnestly: "If Marden is right, it would take us three months. Actually, the Riss star is

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almost, though not quite, as near to Earth as this one." He paused. He was anxious to have moral support for the journey. He went on, "I honestly believe it is our duty to investigate the potentialities of taking counteraction against man's deadly enemy. This war will not be won on the defensive."

He saw that Czinczar was looking straight at him. The barbarian said: "If Marden is right—that's a damning phrase." He shook his head in visible despair. "I give up. Anybody who will order a ship as big and important as this one to make a trip on the strength of Marden's memory of what he saw in the mind of a Riss—"

He broke off. "Surely, there must be maps aboard the *Solar Star.*"

Clane hesitated. This was a sore point with him. He said carefully: "We had an unfortunate accident at the time we took over the ship. Everyone was in an exploring frame of mind, and one of the men wandered into the map room. Can you guess the rest?"

"They'd set energy traps for interlopers."

"He was killed, of course," Clane nodded drably. "It was a lesson for us all. I discovered that all the main control and mechanical departments were similarly mined. We used condemned slaves to do the dangerous work, promising them freedom if they were successful. Result: Only one other accident."

"What was that?" asked the ever-curious Czinczar.

"The interstellar television communicator," Clane replied. He broke off. "I regret as much as you do that we have to make our next move on the basis of Marden's memory."

He hesitated, then made his appeal. "Czinczar," he said slowly, "although I have apparently ignored your opinions on this journey, I do have a high respect for them. I sincerely believe you are being too narrowly practical. You are too bound to the solar system. I don't think you realize how much you think of it as a home that must be defended to the death. But never mind that. What I have to say to you is no longer based strictly on logic, or even on whether or not we are in agreement.

"I ask for your support because, first, I am the commander of this ship for better or worse; second, if we do come to a Riss planet I intend us to take enormous risks—and that will require your fullest cooperation; third, in spite of all your doubts, you yourself feel that the discovery of the chlorodel plant partially justifies the journey so far. I disagree with that, but at least it goes to show that there are secrets to be discovered out here."

He finished quietly: "That's all I have to say. What's your answer?"

Czinczar said: "In our correspondence, and in our present discussion, neither you nor I have referred to the Outlander method of transportation. What is your reason for not mentioning it? Don't you think it has any value?"

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The very extent of the thoughts he had had on the subject held Clane momentarily silent. He said finally, "It would be a terrific advantage, but I can't see it as being decisive—as it now stands. Besides, we can't get it."

He explained the efforts he had made, and the impossibility of gaining the secret from the mercurial inhabitants. He finished:

"I do have a plan about it. My idea is that we leave behind young couples to whom children were born during the trip. Their instructions will be to try to have their youngsters trained by the Outlanders. That will take nine years."

"I see." Czinczar frowned at the floor, finally stood up. "If there's any fighting to do when we get to the Riss planet, call on me. Is that what you mean by support?"

Clane smiled wanly, and also stood up. "I suppose so," he said. "I suppose so."

Lord Clane Linn walked slowly to the weapon control room after separating from Czinczar. For a long time, he sat in one of the giant chairs, idly manipulating a viewing instrument. Finally, he shook his head. The unpleasant fact was that Czinczar's doubts about accepting Marden's directions had convinced him. Such a trip still had to be made, but not on such a flimsy basis.

Unfortunately, the only other idea he had was so wild—and dangerous—he still hadn't mentioned it to anyone. Even Czinczar had not suggested an attack on the other Riss battleship.

Six hours went by. And then a message arrived from the barbarian leader.

Dear Lord Clane:

The ship is not accelerating. What's the matter? If we are going on this journey, we should be on our way. Czinczar.

Clane bit his lips over the letter. He did not answer it immediately, but its arrival stiffened him to the need for a decision. *At least,* he thought, *I could go down again, and see Marden.*

It was already dark when he landed in the village. Marden opened the door with the reluctance of a man who knew in advance who his visitor was, and was not interested.

"I thought you were leaving," he said.

"I have a favor to ask," said Clane.

Marden peered through the slit of the door, polite from habit.

"We have to try to come to an agreement with the Riss," said Clane. "Do you think one of your people—of those who are allowed aboard the Riss ship—would be willing to help my emissaries meet the Riss?"

Marden laughed, as at a private joke: "Oh, yes, Guylan would."

"Guylan?"

"When he learned of the enmity between you and the Riss, he thought something should be done to bring you together." Marden's

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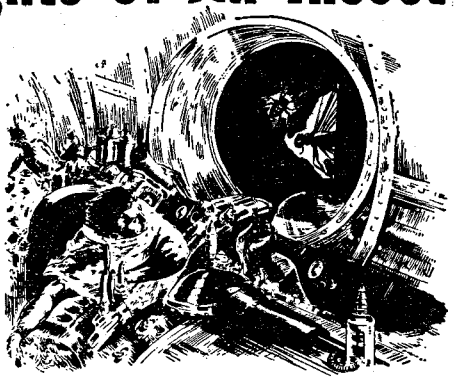

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tone suggested that Guylan was a little simple about such things. He finished, "I'll talk to him about this in the morning."

Clane urged, "Why not now?" He had to fight his impatience. "All this is very serious, Marden. If our two ships should meet, there might be a big battle. It's not too late in the evening yet. Could you possibly contact him for me immediately?"

He tried to hide his anxiety. There was just a chance that Marden would realize his real intentions. He was counting on their intricacy, and their mechanical aspects, to baffle the Outlander's suspicions. He saw that the man seemed doubtful.

"There's something about your purpose—" Marden began. He shook his head. "But then you people don't think straight, do you?" He seemed to be talking to himself. "This fear of yours," he said aloud thoughtfully. Once more he failed to finish a sentence. "Just a minute," he said.

He disappeared into the house. Not one, but several minutes went by. Then he came to the door with a tall, thin, mild-faced man.

"This is Guylan," he said. He added, "Good night." He closed the door.

The battle began in the hours of darkness before the dawn. In the weapon control room, Clane sat in a chair at the back of the room. From that vantage point he could see all the viewing plates.

High on the "forward" screen, the Riss battleship was clearly visible. Like a monstrous torpedo, it was silhouetted against the dark sky of Outland.

All the plates were on infrared light control, and visibility was amazingly sharp.

A hand tugged at Clane's arm. It was Guylan. "Is it time?" the Outlander asked anxiously.

Clane hesitated, and glanced at the thirty volunteers waiting in the corridor outside. They had been training for hours, and there was such a thing as letting too much tension build up. They had their instructions. All he had to do was give the signal.

His hesitation ended. "All right, Guylan," he said.

He did not look to see what the reaction was, but touched a button that flicked on a light in front of the man controlling the molecular weapon. The officer paused to aim along a sighting device, and then released the firing pin.

He held the aiming device steady.

A line of fire crept along the length of the enemy battleship. The effect was beyond Clane's anticipation. The flame licked high and bright. The night came alive with the coruscating fury of that immense fire. The dark land below sparkled with reflected glare.

And still there was no answering fire. Clane stole a glance at the corridor, where the volunteers had waited. It was empty.

A shout brought his gaze back to the Riss ship. "It's falling!" somebody yelled.

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It was, slowly and majestically, one end tilted down, and the other end came up. It made a complete somersault in the first five miles of its fall, and then began to spin faster. The man manipulating the screen on which it had been visible lost sight of it for a few seconds. When he brought it into focus again, it was ten miles nearer the ground, and still falling.

It struck the ground with a curious effect. The soil did not seem solid, but acted as a liquid might. The ship went into it for about a third of its length.

That was their only indication of how tremendous the impact had been.

The weapon officers were cheering wildly. Clane said nothing. He was trembling, but mass enthusiasm was something in which he was constitutionally incapable of joining. He caught a movement out of the corner of one eye. He turned. It was Guylan.

The Outlander had a hurt expression on his face. "You didn't play fair," he said, as soon as he could make himself heard. "I thought this was supposed to be an attempt to be friendly."

It was a moment for guilt feelings, a time to think of abandoned ideals. Clane shook his head. He felt sorry for the Outlander, but he was not apologetic. "We had to be prepared for an attack," he said. "You can't fool with beings who bombed Earth cities."

"But it was you who attacked," Guylan protested. "The moment I put your men aboard each one ran for some machine, and exploded something."

"The Riss have other ships," said Clane diplomatically. "Thousands of them. We have only this one. To make them talk to us, we have to get them where they can't get away."

"But they're all dead," Guylan said plaintively. "The fall killed everybody aboard."

Clane tried to hold down his feeling of triumph. "It did strike the ground rather hard," he admitted.

He realized that the conversation was getting nowhere. "See here, Guylan, this whole business is deadly, and you're looking at it from too narrow a viewpoint. We want to make contact with the Riss. So far, they haven't let us. If you'll look into my mind, you'll see that that's true."

Guylan said unhappily after a moment, "I guess that's so all right, but I didn't realize before what you were going to do. There was something in your mind but—"

Clane could understand a part of the other's dilemma. All his life Guylan had taken for granted that he knew what was going on in other people's minds. But he had not been able to grasp the notion that thirty men could attack a gigantic battleship with tens of thousands of powerful beings aboard. And that that small number of individuals would set off booby traps which the Riss had designed to protect their secrets in the event a ship ever fell into the

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possession of an enemy. The concept involved mechanical understanding. Accordingly, it was beyond Guylan and his fellows. Lacking the knowledge, lacking the complex associations, their mind-reading ability was of no use to them in this situation.

Clane saw that the man was genuinely dispirited. He said quickly: "Look, Guylan, I want to show you something."

Guylan said glumly: "I think I'd better go home."

"This is important," said Clane. He tugged gently at the other's sleeve. Guylan allowed himself to be led to the "protector" instrument. Clane indicated the main switch. "Did you see one of our men shut this off by pushing it like this?" He grasped the instrument, and plunged it deep into its socket. It locked into position.

Guylan shook his head. "No, I don't remember."

Clane said earnestly: "We've got to make sure of that." He explained how the "protector" worked, and that any Outlander who wandered near the ship would die. "You've got to go aboard, Guylan, and shut that off."

Guylan said in surprise: "Is this the thing that they guarded me against, and the others who were allowed aboard?"

"This is it. It kills everything in a two and a half mile range."

Guyland frowned. "Why didn't it kill the men I took aboard?"

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Clane swallowed hard. " Guylan," he said gently, "have you ever seen a man burned alive?"

"I've heard of it."

"Did he die right away?"

"No. He ran around madly."

"Exactly," said Clane grimly. "Guylan, those volunteers started to burn all through their bodies the moment they got aboard. But they didn't die right away. They gambled on getting that machine shut off in time."

It didn't work exactly like that. But it was too difficult to explain what happened to the metabolism of a human being when the temperature in every cell of his body suddenly went up sixty degrees.

The Outlander said uneasily: "I'd better hurry. Somebody might get hurt."

He vanished. That made Clane jump. It was the first time he had actually seen it happen, and it gave him an eerie feeling. Abruptly, Guylan was standing beside him again.

"It's off," he said. He seemed relieved.

Clane held out his hand. "Guylan," he said warmly, "I want to thank you."

The Outlander shook his head. He had evidently been doing some thinking. "No," he said, "that was all unfair. You treated the Riss unfairly." A stubborn expression grew into his mild face. "Don't ever ask me to do you another favor."

"Thank you just the same."

Afterwards, Clane thought: *First, I'll go aboard, and get the maps, and then—"*

He had to struggle against the tremendous excitement that was in him. He pictured the message he would send to Czinczar just before breakfast. Abruptly, he couldn't restrain himself. He sat down, and with quivering hand dashed off the message:

Dear Czinczar:

You will be happy to know that we have successfully engaged the enemy warship. Our victory includes capture of his ship, and destruction of all Riss aboard. It is interesting to note that captured maps identified the nearest Riss star as the one picked by Marden. Clane.

As it turned out, the final sentence of the note had to be rewritten before the message was delivered. The captured maps proved that Marden knew nothing about the direction of stars. The Riss sun was about three months away, but in exactly the opposite direction.

By the following evening, the *Solar Star* was on its way.

XVIII.

The first squall from the boy came faintly to Clane's ears through the thick panels of the bedroom door. The sound of it electrified him. He had already ordered acceleration down to one G. Now, he went to the laboratory that adjoined the control room, intending to work. But a great weariness was upon him. For the first time, he realized how tense he had been, how tired he was. He lay down on the cot and fell asleep immediately.

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It was morning when he awakened. He went to Madelina's and his apartment, and at his request the baby was shown to him. He examined it carefully for indications that his own mutational characteristics had been passed on, but there was no sign of anything out of the normal. It baffled him. Not for the first time, he had a sense of frustration. He knew so little in a world where there was so much to know.

He wondered if there might be neural similarities between the child and himself. He hoped so. For he did not doubt his own greatness. His history proved that he was perceptive as few men had ever been. And he was just beginning to suspect that he was also supernormally stable.

He'd have to watch the child for indications that the two of them were —different.

Except for its structural normalcy, the appearance of the baby gave him no aesthetic satisfaction. It was about as ugly a child as he had ever had the misfortune to look upon, and he was startled when the head nurse crooned: "Such a beautiful child."

He supposed that it might turn into one since Madelina was an extremely good-looking girl. And he presumed that the child's normalcy proved that her side of the family would dominate it phsically.

Looking down at the child as it was being clothed again after its bath, he grew sad. He had been wor-

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ried about the possibility of mutational changes and he was happy that there were none. But he could already imagine the boy being ashamed of his father.

That thought ended when a nurse came out of the bedroom and told him that Madelina was awake and was asking for him. He found her cheerful and full of plans.

"You know," she said, "I never before realized what wonderfully considerate people we have with us. The women have been just marvelous to me."

He gazed thoughtfully at her as she talked. During the long voyage, Madelina had undergone profound psychological adjustments. There had been an incident involving an assassin of Lilidel's who had somehow got aboard in the guise of a soldier. The would-be killer never guessed how hopeless his purpose was. On approaching their apartment he set off alarms; and so Clane had deliberately invited Madelina to be in at the death. The man's desperate will to live had affected her tremendously. From that moment, she ceased to talk of death as something she could take or leave alone.

He listened now, happy in the change that had taken place, as she praised several of the servants individually. She broke off abruptly. "Oh, I almost forgot. You know how hard it's been for us to decide on his name—well, I dreamed it: Braden. Just think that over for a minute. Braden Linn."

Clane accepted the name after a moment's hesitation. A child's first name should be individual, to distinguish him from other's of his line. There would have to be a string of second names, of course, to honor the famous men of both families. It was an old custom, and one of which he approved, this giving of many family names. It reminded the bearer of the past history of his line. It brought a sense of continuity of life, and gave the proud possessor a feeling of belonging; a will to do as well as, or better, than his namesake. Even he, who had so many physical reasons for not having that sense of belonging, had felt the pressure of the many names that had been bestowed upon him at the hour of his christening.

The full name finally given to the new baby was Braden Jerrin Garlan Joquin Dold Corgay Linn.

It was two weeks after the birth that the *Solar Star* came to its second destination in space.

Clane entered the conference room briskly. Now, at last there was no reason for inner conflicts. An enemy planet was already bright in the darkness ahead of them.

It was time to prepare for action.

First, he made his prepared speech, stressing the value of courage. His eyes studied the faces of the men as he talked, watching for signs of cynicism. He didn't expect too much of that. These were earnest men, conscious of the reality of their mission.

Some of them, he saw, appeared

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puzzled by the tenor of his talk. There was a time when he would have yielded to that gathering impatience. No more. In every great objective the leader must start from the beginning, first evoking the emotional attitude necessary to success. In the past he'd assumed automatically that soldiers took courage for granted. They did, but only if they were reminded. And even then, on the general staff level, there was resistance from individuals.

Having completed his diatribe on courage, he launched into the explanation of his purpose. He hadn't gone far before he began to notice the reactions.

The officers, barbarians as well as Linnans, were almost uniformly pale. Only Czinczar was frowning with a sudden thoughtful air, his eyes narrowed with calculation.

"But, your excellency," one of the Linnans protested, "this is a major Riss planet. They'll have hundreds of ships to our one."

Clane held himself cool. It was an old experience with him now to realize that only he had reasoned out the situation as a whole. He said gently: "Gentlemen, I hope we are all agreed that this ship and those aboard must take risks to the limits of good sense."

"Yes, but this is madness." It was General Marik, now Clane's private secretary. "As soon as they dis-

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cover us—" He paused, as if he had been struck by a new thought. He said, "Or do you expect that we will not be discovered?"

Clane smiled. "We'll make sure that we are. My plan is to land most of the"—he hesitated, and bit his lip; he'd almost said "barbarian", then he went on—"European army, and establish a bridgehead."

The faces of the barbarian officers took on a sick expression, and almost everyone in the room looked appalled. Once more, the exception was Czinczar. Clane was aware of the barbarian leader watching him with bright eyes, in which the light of understanding was beginning to dawn. Clane stood up.

"Gentlemen," he chided, "you will refrain from frightening the troops with your all too obvious dismay. Our approach to this problem is soundly based. Spaceships are *not* destroyed in space. They cannot even maintain contact with each other when those aboard are friendly to each other, and make every effort to keep together. So you may be sure that the Riss will not contact us as long as we keep moving.

"As for the landing, it is the oldest reality of military history that a bridgehead can always be established and held for a time. And no one has *ever* figured out a method of preventing an enemy from landing somewhere on a planet."

He broke off. "But now, enough of argument. We have our purpose. Now, we come to what is far more important, the intricate details of carrying out that purpose."

He explained his own ideas, and then, before throwing the meeting open to general discussion, finished, "In everything, we must follow the rule of the calculated risk. We must be aware at all times that there will be sacrifices. But in my opinion, no plan can be acceptable which does not offer some hope of saving a fairly large percentage of the bridgehead army."

Czinczar was the first to get up. "What," he asked, "is the exact purpose of the landing?"

"To see what reaction it brings, how strong the reaction is, how they attack, with what weapons? In short, how do the Riss plan to defend their planet?"

"Isn't it possible," Czinczar asked, "that this information was known to the ancient humans who fought the great Riss-human war?"

"Perhaps." Clane hesitated, not sure whether this was the moment to offer his own estimate of that past war, and its conduct. He decided finally that it wasn't. He said: "I found no books on the war itself, so I can't answer your question."

Czinczar looked at him steadily for several seconds, and then finished: "Naturally, I am in favor of the landing. Here are my ideas on your plan—"

The discussion continued on that practical level. There were no further objections to the landing itself.

TO BE CONCLUDED.

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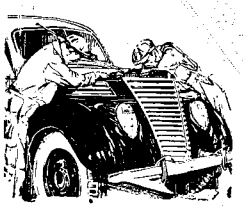

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